

THE PRODUCTION AND MANAGEMENT JOURNAL OF THE NORTH AMERICAN PULP AND PAPER INDUSTRY



Nalco

PITCH CONTROL

Produces These Typical Results:

✓ "PAPER MACHINES IN FINE CONDITION"

From a Nalco Engineer's report on The Nalco System of Pitch Control in a mill producing fine papers:

"Beater Room Superintendent reported that paper machines were in very fine condition when examined during shutdown period over the weekend. Trays were reported in very good condition and much better than formerly noted. No sticking on press rolls. Oliver filter reported in good condition, no plugging. The Savalla Savelall reported in very good condition."

THE examples above are typical of the success and versatility of The Nalco System of Pitch Control in paper and pulp mills. Pitch-free operation saves time and money in these mills, and helps to produce a better product.

If you have pitch control problems, write Nalco for full data on the efficient, economical Nalco System as it may apply to your mill.

NATIONAL ALUMINATE CORPORATION
6213 W. 64th Place • Chicago 38, Illinois
Canadian inquiries should be addressed to
Alchem, Limited, Burlington, Ontario, Canada

✓ NALCO ELIMINATED PITCH AND POPLAR WAX

In a mill manufacturing semi-chemical pulp, another Nalco Engineer reports:

"This company ran into considerable trouble recently from pitch and poplar wax in their semi-chemical corrugated medium. These waxes caused filling of wires and sticking of press rolls which in turn caused up to 30 breaks in a day. Nalco Pitch Control was applied at the fan pump and eliminated their trouble."

Nalco BALL FEEDER

Nalco Ball Feeders utilize Nalco Ball Briquet chemicals weighing one pound each to provide simple, virtually foolproof control of feed rates. Where mills have facilities for pulverized or liquid feeding of chemicals Nalco can also provide them.



THE

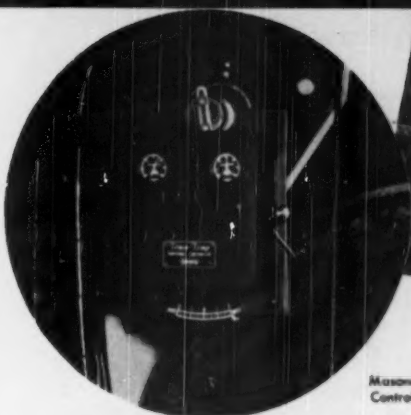
SYSTEM • Serving the Paper Industry through Practical Applied Science

MASONEILAN

Tenso-Temp Controls

Pay for Themselves

by Maintaining Accurate
Moisture Content



Masoneilan Moisture
Controller

Control panel with a Masoneilan Temperature Controller,
Manual Control Unit, Selector Valve and Pressure Recorder

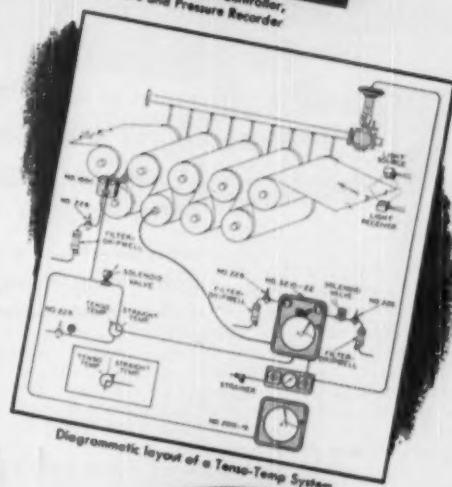
In paper mill after paper mill, Masoneilan Tenso-Temp Controls are paying for themselves by reducing waste, providing more uniform quality and minimizing rejects. That's why you find Tenso-Temp specified and used in new installations and in modernization programs. Consider these additional advantages that make Tenso-Temp worth investigating for your mill.

Tenso-Temp is accurate because moisture contact measurement is averaged for the full width of the sheet. Response is instantaneous... variations in weight across the sheet do not produce false indication and inaccurate control.

Tenso-Temp is sensitive to the slightest variations in moisture content... precisely adjustable to maintain the desired moisture.

Tenso-Temp is economical because original cost is moderate and maintenance and operating costs are at a minimum.

Tenso-Temp is adaptable to any type of paper from condenser to board.



Diagrammatic layout of a Tenso-Temp System

MASON-NEILAN REGULATOR COMPANY

1181 ADAMS STREET, BOSTON 24, MASSACHUSETTS, U. S. A.



Sales Offices or Distributors in the Following Cities: New York • Syracuse • Chicago • St. Louis • Philadelphia • Houston
Denver • Pittsburgh • Cleveland • Cincinnati • Tulsa • Atlanta • Detroit • Los Angeles • San Francisco
Salt Lake City • El Paso • Boise • Albuquerque • Charlotte, N. C. Masoneilan Regulator Company, Ltd., Montreal and Toronto

March 1950

SOLKA®

offers you a *complete* range of highly purified
"extreme-specification" wood fibres

SOLKA is the trade name of a complete range of highly purified Brown Company pulps which possess carefully graduated chemical and physical properties. The Solka pulps are designed to satisfy the unusual requirements of papers specifically engineered for particular quali-

ties such as maximum durability — extreme softness, etc.



The eight grades of SOLKA pulp include soft wood and hard wood fibres — sulphate and sulphite pulps and offer the widest range of chemical and physical properties to the manufacturer faced with unusual paper problems.

Our technical service department is always at your service for the development of special furnishes to meet particular paper problems.

BROWN COMPANY
FOREMOST PRODUCERS  PURIFIED CELLULOSE

PULP SALES OFFICES: 500 FIFTH AVENUE, NEW YORK 18, NEW YORK • 465 CONGRESS STREET, PORTLAND 3, MAINE • 110 S. DEARBORN STREET, CHICAGO 3, ILLINOIS • 58 SUTTER STREET, SAN FRANCISCO 4, CALIFORNIA • BROWN CORPORATION, 906 SUN LIFE BLDG., MONTREAL 2, P. Q., CANADA



with the new Camachine

A VERSATILE, NEW HIGH-SPEED SLITTER-REWINDER
FOR MILLS, MANUFACTURERS AND CONVERTING PLANTS

THE NEW COMMANDER truly represents one of the greatest advances in Cameron's half century of specialization in slitter-rewinder engineering. Cameron experience and engineering have blended in the Commander to provide new high speeds, new trouble-free dependability, and new features for top quality roll production at new low costs.

Makers and users of plain, waxed, gummed and coated papers or paper board will find the Commander a highly profitable addition to plant production facilities.

Among the outstanding features of the new Commander are the following:

The Camachine Pneucut pneumatic slitters allow pressure on the entire line of cutters to be controlled from a single point. Pneumatically controlled pressure assures cleaner cutting through longer runs, with no time lost for separate cutter adjustments. Shear cut units may be specified.

The main drive unit is now completely enclosed for safety, while the main

drive shaft outboard bearing support has been made an integral unit of the main frame, assuring exact alignment.

All gearing is now completely enclosed and running in a bath of oil, for longer life and added safety.

You'll like the new style of the Commander too. It's a good-looking machine to have on the floor, and it pays off day after day in fast, high quality, trouble-free production. You are invited to send for complete information.

Camachines

FOR FIRST, TOP QUALITY ROLL PRODUCTION

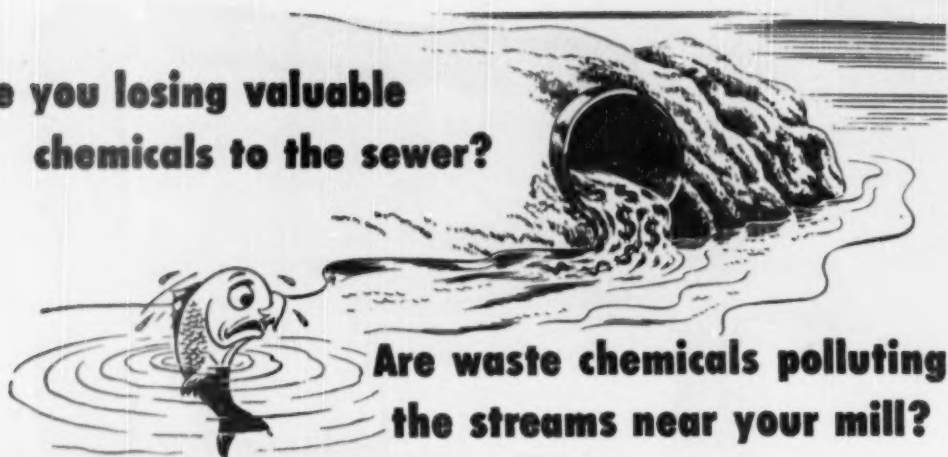
... the world over

CAMERON MACHINE COMPANY • 61 POPLAR STREET • BROOKLYN 3, N. Y.

PACIFIC COAST SUPPLY COMPANY • PUBLIC SERVICE BUILDING, PORTLAND 4, ORE. • 342 SANSOME STREET, SAN FRANCISCO 19, CAL.

March 1950

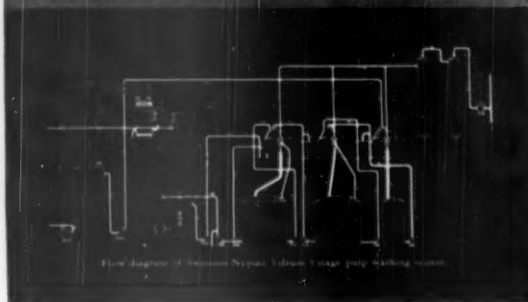
**Are you losing valuable
chemicals to the sewer?**



**Are waste chemicals polluting
the streams near your mill?**



Then it's time to investigate the Swenson-Nyman Pulp Washer, which operates as a closed system. Multi-stage countercurrent washing minimizes dilution... eases evaporator loads... saves steam and fuel.



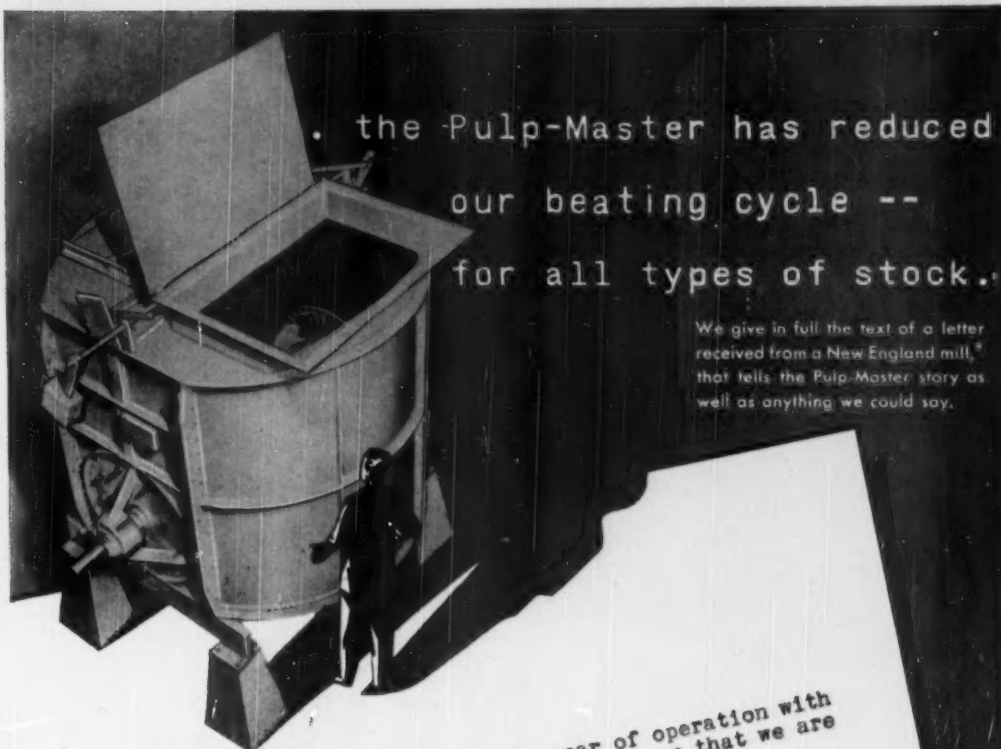
Each Swenson-Nyman drum provides 2-stage washing. Mills, today, are using two and three drums in series—washing pulp in 4, 5, or 6 stages for greater economy.

Swenson-Nyman Pulp Washers and other Swenson equipment of interest to pulp mills are described and illustrated in Bulletin E-108—write for a copy, today.

- Evaporators
- Pulp Washers • Filters • Causticizers
- Digester Blow Condensers
- Surface Condensers
- Turpentine Condensers • Deckers

SWENSON
SWENSON EVAPORATOR COMPANY

DIVISION OF WHITING CORPORATION
15432 Lathrop Ave. Harvey, Illinois
Eastern Sales Office and Export Department:
30 Church St., New York 7, N. Y.
In Canada: Whiting Corporation (Canada) Ltd.,
47-49 LaPlante Ave., Toronto 2



the Pulp-Master has reduced
our beating cycle --
for all types of stock.

We give in full the text of a letter
received from a New England mill,
that tells the Pulp-Master story as
well as anything we could say.

Dear Mr. Williams:

We have completed approximately one year of operation with
our Jones Pulpmaster and are happy to tell you that we are
entirely satisfied with this equipment.

While our Pulpmaster is used primarily as a stock breaker
we have found that it is quite capable of rendering suf-
ficient hydration and defibering action so that with over
50% of our stock only additional treatment in one Jordan
is necessary before it is ready for the paper machine.
The balance of our stock consisting almost entirely of
foreign unbleached sulphite and kraft is treated in one
to three Jones #1 Refiners before going onto the paper
machine. In all cases we operate our Pulpmaster with
stock of high consistency - 5½% to 7%.

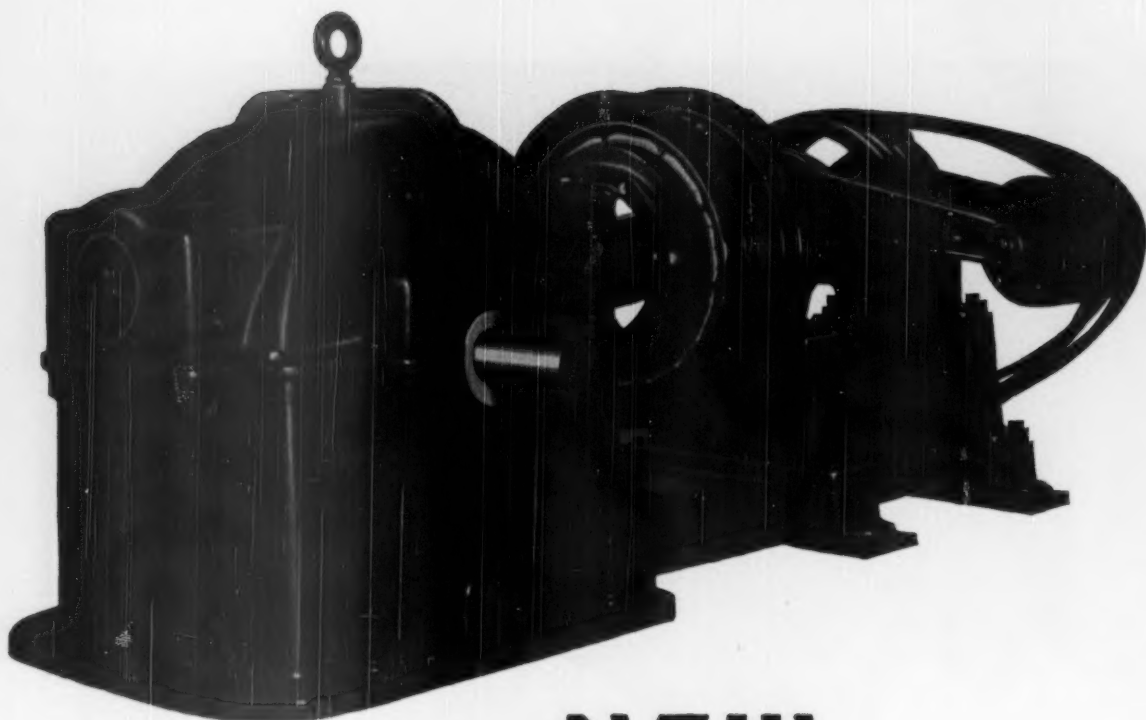
We have found that use of the Pulpmaster has reduced our
beating cycle from six or seven hours to one hour or less
for all types of stock used, with a subsequent reduction
in the labor required in our beater room.

*We'll be glad to send a facsimile copy of the letter and
descriptive bulletin No. EDJ-1019A if you'll write us.



E. D. Jones & Sons Company, Pittsfield, Mass.

BUILDERS OF QUALITY STOCK PREPARATION MACHINERY
March 1950



It's **NEW...**

THE BAGLEY AND SEWALL SHORT CENTER DRIVE

Here's a new Bagley and Sewall Drive—definitely new. It's a V-belt, short center Drive that enables you to have the line shaft on the machine room floor—not underneath . . . with a lot of pulleys and flat belts.

Being a V-belt Drive, it's a steadier, more positive Drive—gives you a smooth running machine. Equipped with hypoid gears, it delivers a maximum of power.

This Drive also has a new design in bearing suspension that makes adjustment of the bearings and gears easy. And a gear oil pump gives you positive lubrication of the gears and bearings. This is definitely a new Drive, resulting from eighty years' experience in the manufacture of paper mill machinery.

Write us. Our sales engineers will gladly show you the advantages of this new Drive as applied to your machines.

BAGLEY & SEWALL

DESIGNERS AND BUILDERS OF PAPER MAKING MACHINERY

Foreign Representative: Castle and Overton, Inc.
420 Fifth Avenue, Rockefeller Center
New York, New York

WATERTOWN, NEW YORK

NOPCO KFS^{*} CUTS FOAM

ALL ALONG THE LINE

Wherever foaming occurs—on screens, in riffles and washers, and on paper machines—you'll find Nopco's newly-developed KFS an outstanding foam killer. It practically eliminates obstinate foam conditions within a *matter of minutes*.

If results with defoamers you have already used have not proved satisfactory, it is very probable that KFS is the one you are seeking. For this new foam destroyer is stable to chemicals such as alum and chlorine, and to hard water. It can do a real job *all along the line*, no matter how great the volume or speed of production.

IN THE PULP MILL

Added to digester effluent, KFS cuts foam to negligible proportions.

Added to bleach plant effluent, which contains chlorine-lignin combinations and foams heavily, KFS does an exceptional job of foam control—making it easy to dispose of waste liquors.

Added to stock immediately before it passes through screens, riffles and washers, KFS prevents foam formation during processing.

IN THE PAPER MILL

When added to stock just preceding any point where foaming occurs, KFS dissipates foam effectively. Thus foaming can be eliminated on the screen, in the vat, or on the wire. The results are: better fibre dispersal, reduced breaks, *improved sheet formation*. In addition, higher machine speeds are made possible *without sacrifice of quality*.

Nopco KFS is easily made into a stable emulsion, by agitation with a paddle. Order enough for a trial run—and see for yourself how advantageous this new defoamer can be.



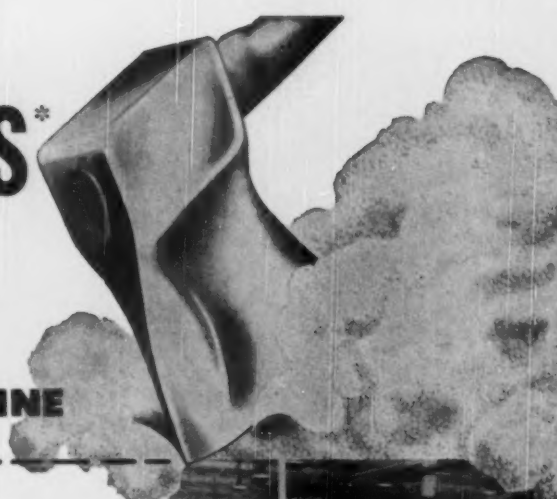
NOPCO CHEMICAL COMPANY

Formerly National Oil Products Company

HARRISON, NEW JERSEY

Branches: Boston, Chicago, Cedarhurst, Ga., Richmond, Calif.

^{*}Reg. U. S. Pat. Off.



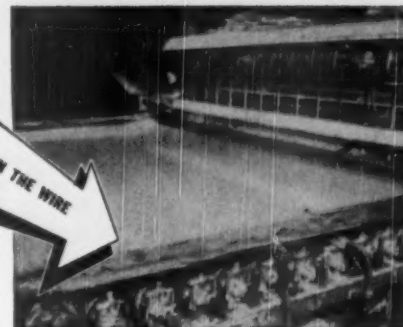
IN SCREENING ROOM

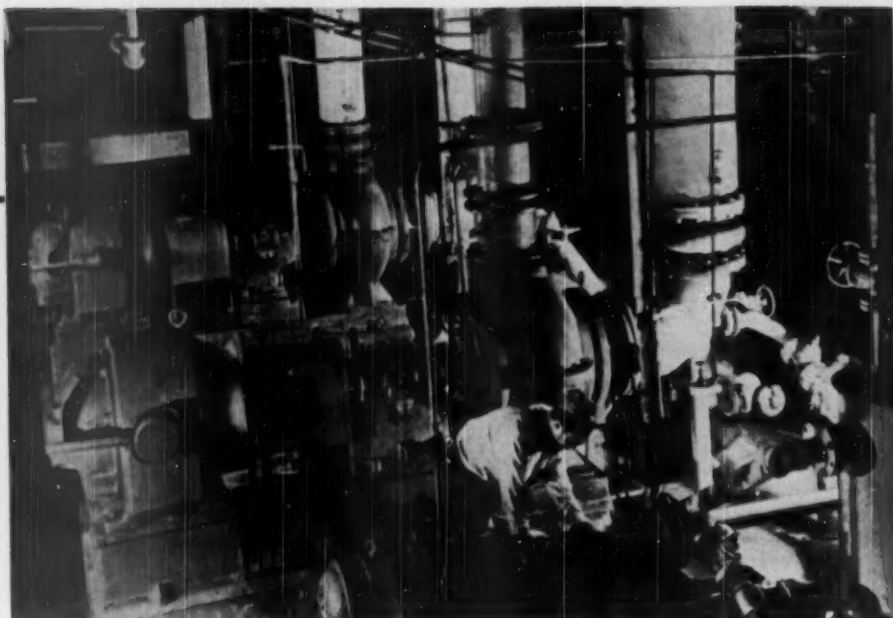


IN BLEACH PLANT



ON THE WIRE





For the Quality you want
...specify **HOOKER CAUSTIC SODA**

If you find it necessary to clean your caustic storage tanks frequently because of sludge deposits, it's time to try Hooker Caustic Soda. Thanks to a recently improved purification process, Hooker Caustic Soda is remarkably free from those impurities that leave sludge deposits. Low in iron and sulfates, it is a high purity product—a purity that is uniform in shipment after shipment.

You can be sure, too, that Caustic Soda from Hooker will reach you with the same high purity that it leaves our plant. Tank cars are all equipped with special protective linings. To make unloading and handling easier in cold weather, each tank car in the Hooker fleet is completely insulated and equipped with steam coils.

Hooker's Technical Staff is also at your service to give you help in the use and handling of Caustic Soda.

Hooker Caustic Soda is available in solid, flake, or liquid form. Liquid is supplied in 50%, 73% and special grade solutions.

For analyses and specifications on Hooker Caustic Soda, write on your business letterhead for technical data sheet No. 735.

From the Salt of the Earth

HOOKER ELECTROCHEMICAL COMPANY

2 UNION STREET, NIAGARA FALLS, N. Y.

NEW YORK, N. Y. • WILMINGTON, CALIF. • TACOMA, WASH.

**HOOKER
CHEMICALS**

10-5

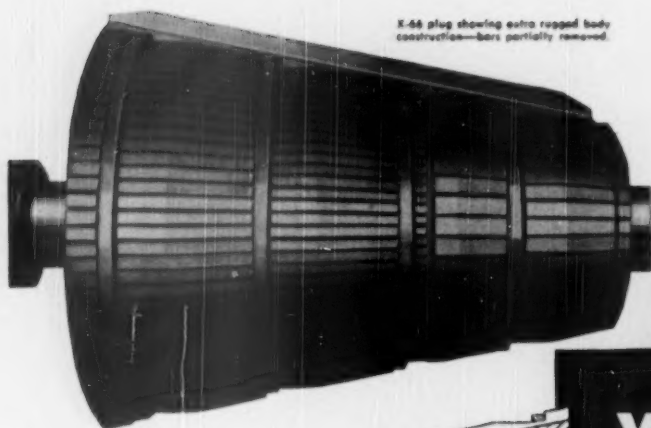
SODIUM SULFIDE • SODIUM SULFHYDRATE • SODIUM BENZOATE • CAUSTIC SODA • MURIATIC ACID • PARADICHLOROBENZENE • CHLORINE
PULP & PAPER

TRADE MARK REG

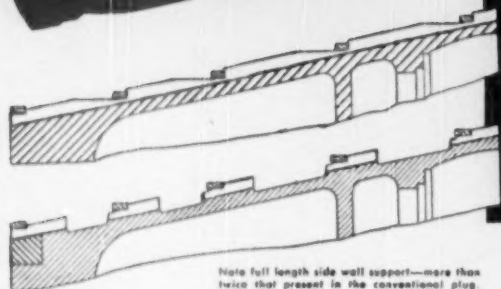
SYMBOL of
HIGHEST QUALITY

B. F. PERKINS & SON, Inc.
ENGINEERS AND MANUFACTURERS
HOLYOKE, MASS.

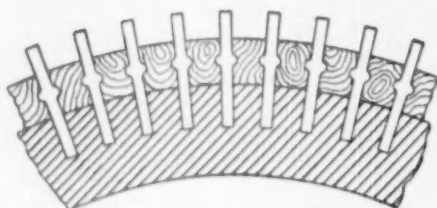
LARGEST MANUFACTURERS OF CALENDER ROLLS IN THE WORLD



X-66 plug showing extra rugged body construction—bars partially removed.



Note full length side wall support—more than twice that present in the conventional plug.



Note depth of metal slots and how the straight-grained woods are keyed between the bars.

The number sold draws near the thousand mark. The number that failed to deliver, only two or three. That's the performance record of the X-66 jordan plug—99.44% plus in any language.

X-66 plugs serve longer because they're built stronger—super rugged body construction—far greater bar support—1" depth of bar buried in metal of the plug.

A size for any jordan. Your preference in bar width, bar arrangement and composition—steel, bronze, stainless, Monel—with bars tempered to degree of hardness preferred.

No mill gambles when it adopts the X-66. On the contrary it is playing a sure thing.

Technical Bulletin 91-S describes the X-66 in detail.

SHARTLE BROS. MACHINE CO. Middletown, Ohio

DILTS MACHINE WORKS, FULTON, NEW YORK
Divisions of THE BLACK CLAWSON COMPANY, HAMILTON, OHIO
Western Sales Office: Mayer Bldg., Portland, Oregon
Subsidiary: B-C INTERNATIONAL LTD., 16 Catherine Place, Victoria, London S.W.1, England
Associate: Alexander Fleck Ltd., Ottawa, Canada

X-66 PLUG

A 99.44% SUCCESS

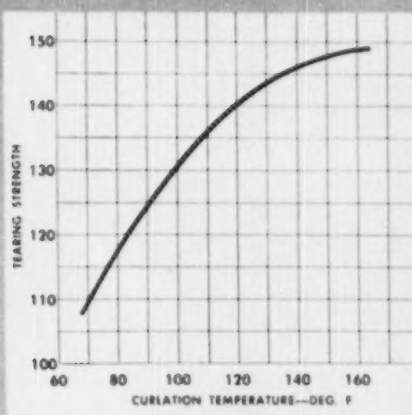
Glimpse extensive lumber supply being reserved for use in jordan fillings.



KIMBLE SYSTEM
EQUIPMENT
A
PRODUCT OF DILTS

PULP & PAPER

TEAR CURVE



TEST DATA

TEMPERATURE OF CURLATION °F	RAW*	70	120	160
FREENESS	835	835	845	856
MULLEN	70.8	62.1	52.6	37.8
TEAR	95	109	140	149
DENSOMETER	14.0	3.7	1.2	0.7

*WITHOUT CURLATION

NOTE: Description of the testing procedures employed by The Curlator Corporation laboratory will be provided upon request.

The CURLATOR is a tool for altering the properties of pulp and paper to obtain qualities hitherto unachievable by mechanical means. The effects of CURLATION are controllable over a wide range by conditions of treatment. They vary with the raw material and may be described only in relation to a particular pulp.

**Effect of Temperature During Curlation
Using Power Consumption of 2.5 H. P. Days
Per A.D. Ton on the Properties of
PREVIOUSLY UNDRIED NORTHERN
UNBLEACHED SULPHITE PULP**

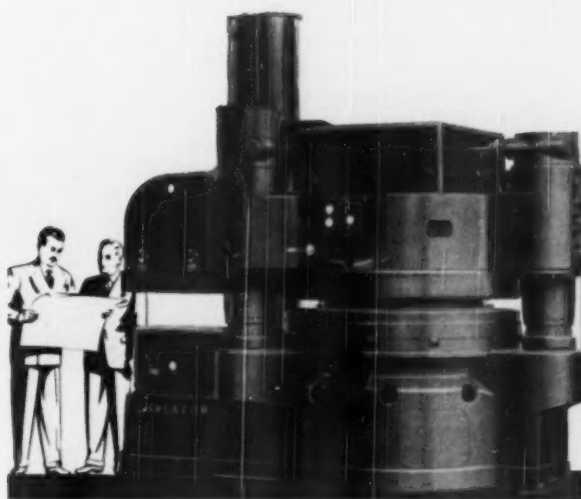
MAY CURLATION SOLVE YOUR PROBLEM?

CURLATION is a fully tested and thoroughly proved mechanical process. It not only produces a permanent change in the shape of pulp fibres, but also exerts a powerful de-shiving action, with negligible change in freeness.

The effects obtainable with CURLATION vary widely with the raw material and the conditions of treatment. In general, CURLATION tends to produce an easier beating pulp from which water is more easily removed.

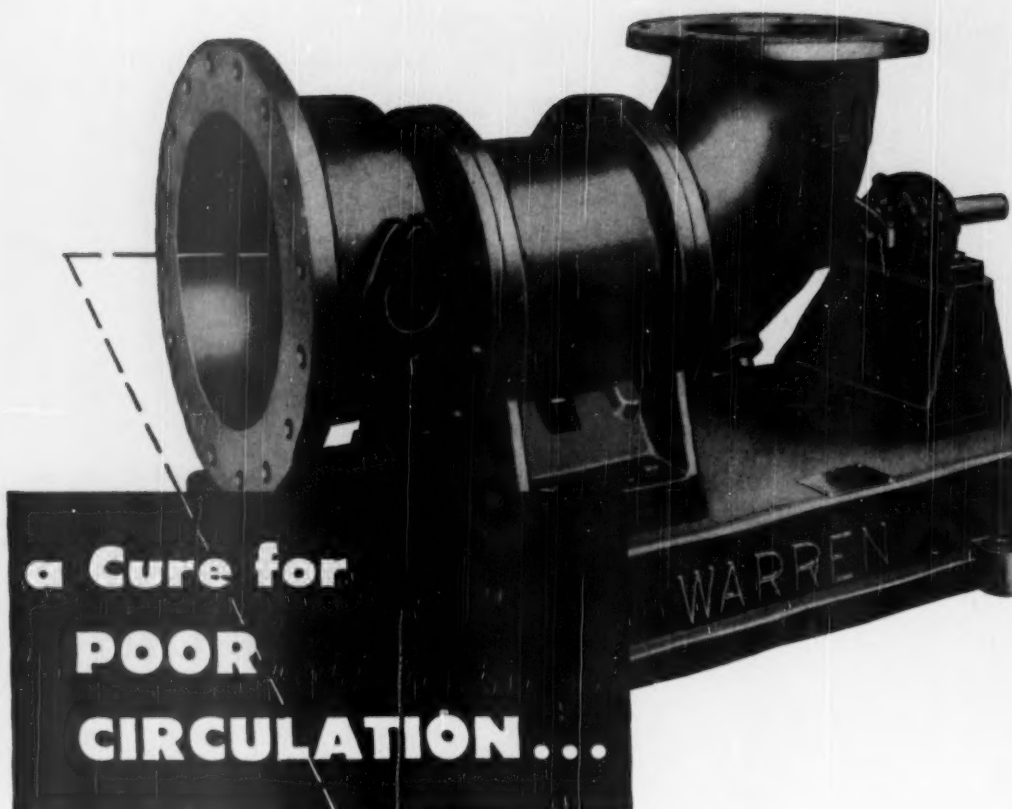
Sheets of CURLATED pulp exhibit a more even textured matte appearance. In addition, the range of qualities obtainable from a given pulp is broadened.

Other important advantages exist. Your inquiries are invited.



CURLATOR⁺
Corporation
565 BLOSSOM ROAD - ROCHESTER 10, NEW YORK

†T. M. Reg.—Curlator Corporation, Rochester, N. Y.



**a Cure for
POOR
CIRCULATION...**

Poor circulation is not a minor ailment . . . if your chests are involved and complications set in. What to do about it? There is one remedy that is particularly successful and that is the installation of Warren Propeller Type Circulating Pumps, engineered and built to handle your particular job. While many mills have the same basic problem of circulation and quick mixing, either in new or existing chests, yet the cycle of operation and operating conditions differ enough to warrant individual attention.

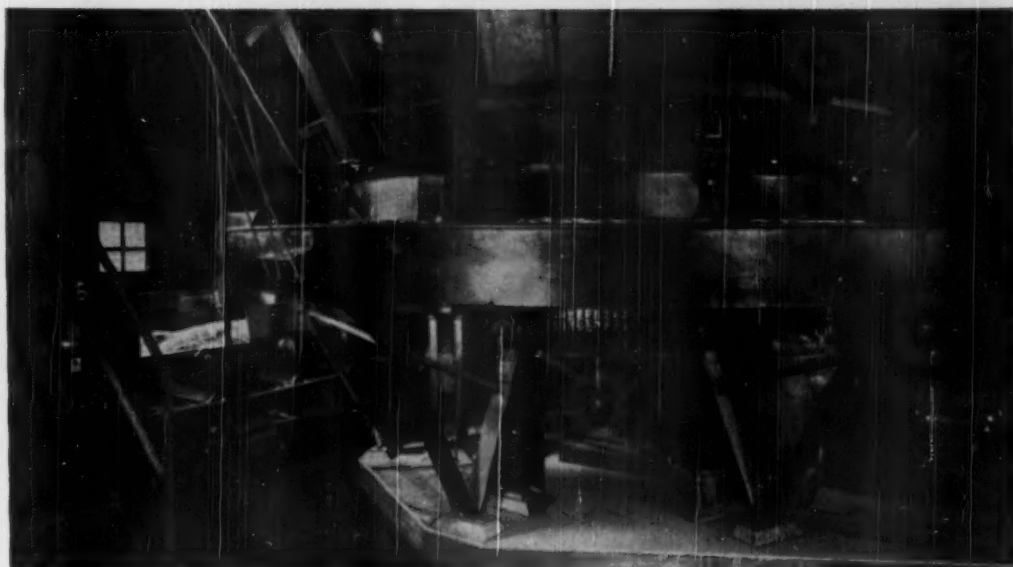
Warren Pulp and Paper Mill engineers are well qualified, through training and many years' experience in the field, to logically evaluate your circulation and mixing problems and suggest ways and means of accomplishing desired results. This applies to all chemical stocks, groundwood, half stock in rag mills, or dirty filler stock in board mills. It may involve horizontal rectangular, vertical cylindrical, or any other type of chests.

Whether it is a question of chest circulation, mixing, or any other pumping service in a pulp or paper mill, it will pay you to consult Warren.

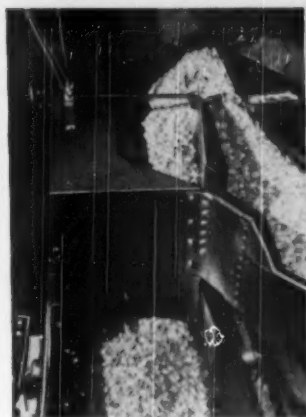
SEND FOR WARREN STOCK PUMP BULLETINS

WARREN PUMPS

WARREN STEAM PUMP COMPANY, INC., WARREN, MASSACHUSETTS



How LINK-BELT Circular Table Feeders Serve Nation's Largest Pulp Mills

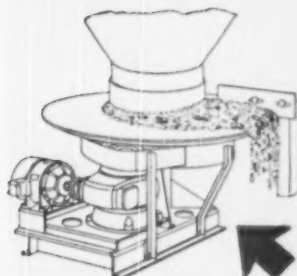


Exclusive Features Account for Outstanding Performance

In many of the large pulp mills in the U. S. and Canada, dozens of Link-Belt Circular Table Feeders are demonstrating their capacity to do an outstanding job in handling chips. Compactness is a feature of their design, as is the spiral collar that regulates the flow of material from bin to plate. From the plate the chips are removed by a plow, adjustable to regulate the flow accurately and easily.

Views of Link-Belt circular table feeder are of an installation in a large Washington mill.

Link-Belt manufactures in its own plants all types of chains, sprockets, a complete line of belt conveyor equipment and accessories, as well as many other types of elevators, conveyors and mechanical power transmission machinery for every service. Link-Belt's knowledge and experience, accumulated through many years of service to the pulp and paper industry the world over, are freely available to assist you in any materials handling or power transmission problem.



Simplified diagram of Link-Belt Circular Table Feeder, with skirt board removed, so principle of operation can be clearly seen.

LINK-BELT COMPANY

Chicago 9, Indianapolis 6, Philadelphia 40, Atlanta, Houston 1, Minneapolis 5,
San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8. Offices in Principal Cities.

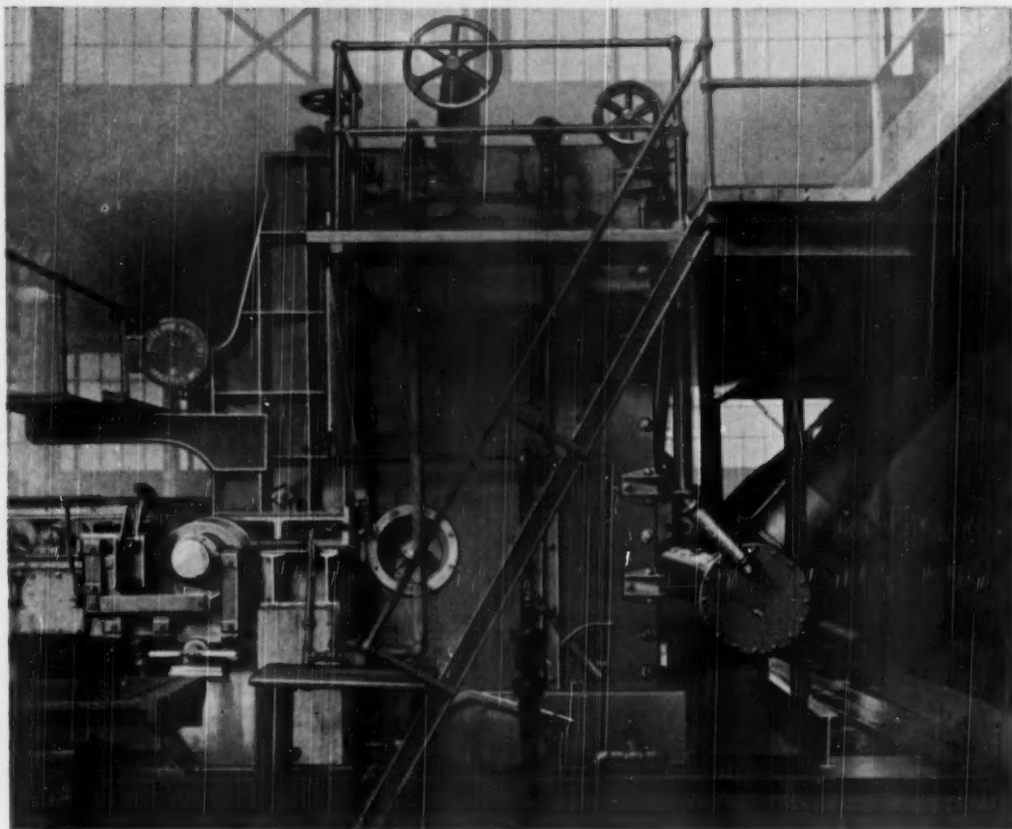
LINK-BELT
CONVEYING MACHINERY
"THE COMPLETE LINE"

A black and white photograph of a dark industrial machine, possibly a paper mill component. A sign is attached to the machine, tilted at an angle. The sign has the words "LODDING DOCTORS" in a bold, sans-serif font. The machine itself is dark and complex, with various pipes and structural elements visible.

LODDING DOCTORS

For every position that needs good doctoring — LODDING.
Lodding Engineering Corporation, Worcester, Massachusetts.
Represented by W. E. Greene Corporation, Woolworth
Building, New York.

BETTER PAPER, FASTER



with **VALLEY**

Stock Entrance Equipment

You cannot compete successfully with an inadequate inlet and headbox. That is where the *quality* of your sheet is made or marred. Your sheet can be no better than its initial formation on the wire. Antiquated Stock Entrance Equipment is costing YOU money.

VALLEY IRON WORKS COMPANY
APPLETON, WISCONSIN

FORMATION

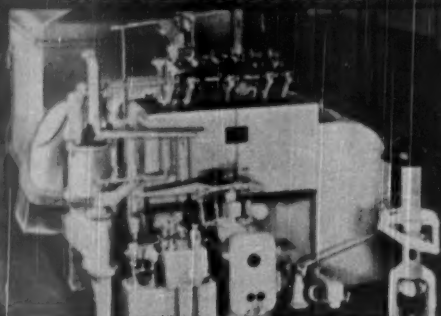
CALIPER

LEVEL SHEET

INCREASED SPEED

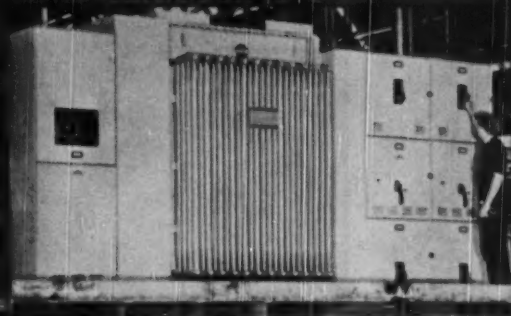
HIGHER TEST

IN POWER GENERATION . . .



G-E turbine-generators supply low-cost power as a by-product of process steam. With few wearing parts, they are easily maintained, give reliable service. Shown here is a G-E 3500-kw double-extraction condensing turbine-generator together with top-mounted air-cooler.

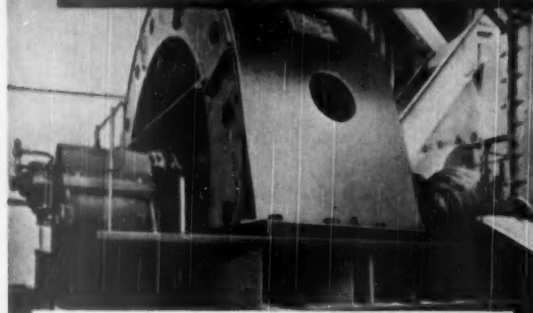
DISTRIBUTION . . .



Reliability plus flexibility for growth are provided by G-E load-center unit substations, as with the 1000-kva unit shown in the photograph above. Team up these substations with G-E metal-clad switchgear and with tough, long-lasting G-E cable for maximum service continuity.

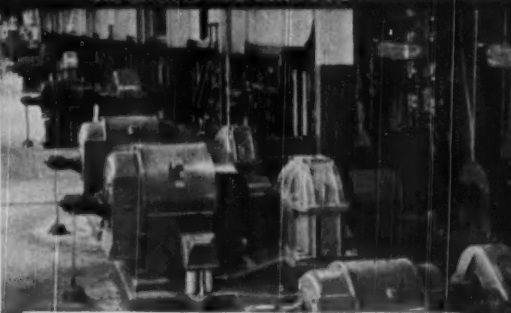
Where do you need PAPER-MAKING

FOR PULP MILL . . .



This G-E synchronous motor, rated 1500 hp, drives a wood chipper. In addition to maintaining constant speed for high production, these high-efficiency low-cost G-E motors will improve your mill's power factor. They are available in high-speed and low-speed types in your required rating.

MACHINE ROOM . . .



With a G-E multiple-generator sectional drive (above), draw is held accurately regardless of load changes, and precision control permits higher speeds, greater output. G-E paper-machine drives, in addition, include every other type made—single-motor, turbine, wet-end helper, and many more.

OR UTILIZATION EQUIPMENT

Centralized control with built-in short-circuit protection is provided for high-voltage motors by G-E Limitamp controllers (as with those above for Jordan drives). G-E Cabinetrol equipment provides compact, centralized control for low-voltage motors, protects personnel.

*to cut
COSTS?*

OR FINISHING ROOM

G-E all-electric supercalender drives, tailored to your needs, hold desired tension at all times. Here stack, unwind, and windup units are all electrically driven. Also available are G-E winder drives that provide accurate control of speed and tension for fast, even-density winding.

General Electric equipment and industry specialists can help you do a faster, uniform-quality job!

What's *your* particular electrical need? Generating equipment that provides more power per fuel dollar? Or new distribution facilities that offer greater protection to your personnel and machines? Are you planning to speed production and cut costs with modern electric drives—for wood and stock preparation, paper-machine operation, or final finishing processes?

Whatever it is in electric equipment, General Electric can furnish it in just the type and size to meet your needs—whether it's only a small motor or control, or all the major electric equipment for your paper mill.

No job's too small, no job's too large. And every job benefits from the careful attention of G-E industry specialists. These men, familiar with the electrical problems in your industry, are skilled in assisting in the selection of the right equipment for your individual requirements.

And here's a big plus—a way you can save yourself time and trouble in modernizing or expanding any mill process. Let General Electric apply its Project-Coordination Plan to assist in selection of equipment, and to provide unified control of manufacture and shipment *to meet construction schedules*. Moreover, General Electric helps you in this way to minimize the endless planning and engineering details of "piecemeal" buying.

An efficient, smooth-working installation assures you faster, lower-cost paper-making. If you are considering mill modernization or expansion, the first step towards your goal is an immediate contact with your G-E specialist in paper-mill electrification. Call on him now—*today!* Apparatus Dept., General Electric Co., Schenectady, N. Y.



GENERAL  ELECTRIC

655-4

HERCULES HEADLINERS...



... that helped cut costs and improve
quality of paper and paperboard

*Here are a few examples of outstanding
Hercules developments in size and sizing
procedure. The results testify to the
valuable background of size re-
search, production, and appli-
cation "know-how" at your
disposal when buying
from Hercules.*

CMC

DRY SIZE

WAX EMULSIONS
IN TANK CARS

PLASTICIZED
DRY ROSIN SIZE

AUTOMATIC
SIZE EMULSIFICATION

80% ROSIN SIZE

HERCULES

sizing materials and chemicals for paper

HERCULES POWDER COMPANY • 985 King Street, Wilmington 99, Delaware

PP00-0

Day in—Day-out . . .
The dependable stand-by of an
ever-increasing number of paper mills

BRANDON
"TRI-UMPH"
Cotton Dryer Felts

LIGHT—MEDIUM—HEAVY WEIGHT

Whether it be Tissue—Book—News or Kraft, these fine felts are running on the smallest and the widest paper machines, meeting the exacting requirements of paper mills from Coast to Coast, day-in—day-out.

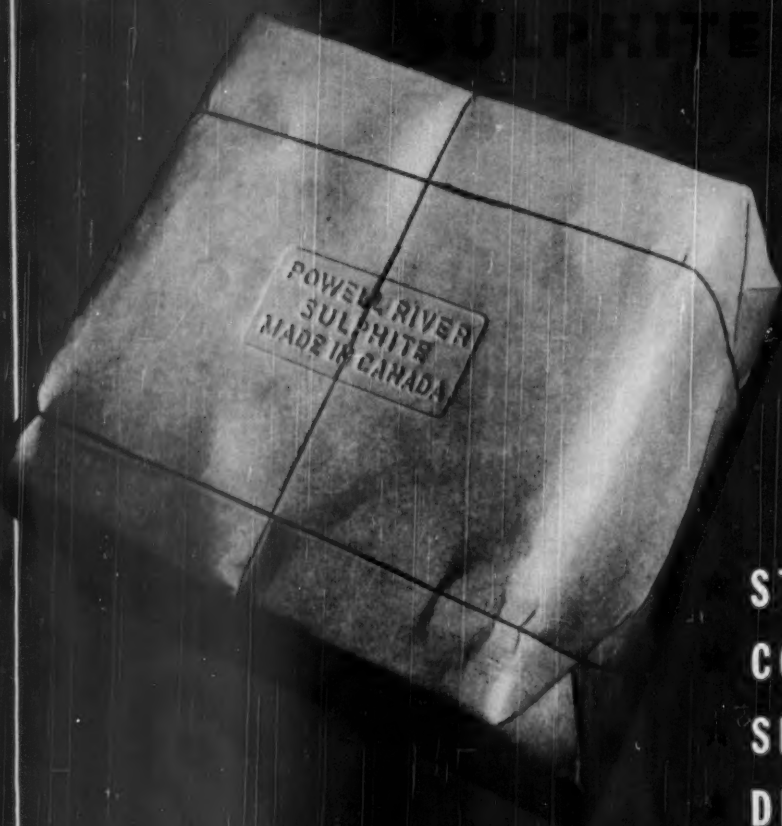
★ Furnished Pre-stretched and Pre-shrunk if desired, or equipped with "Clipper Seams."

Morey Paper Mill Supply Co.
309 SOUTH ST., FITCHBURG, MASSACHUSETTS

Sole Distributors of Dryer Felts Manufactured by
The Abney Mills, BRANDON Dryer Felt Mill
GREENVILLE, SOUTH CAROLINA

POWELL RIVER

UNBLEACHED
SULPHITE PULP

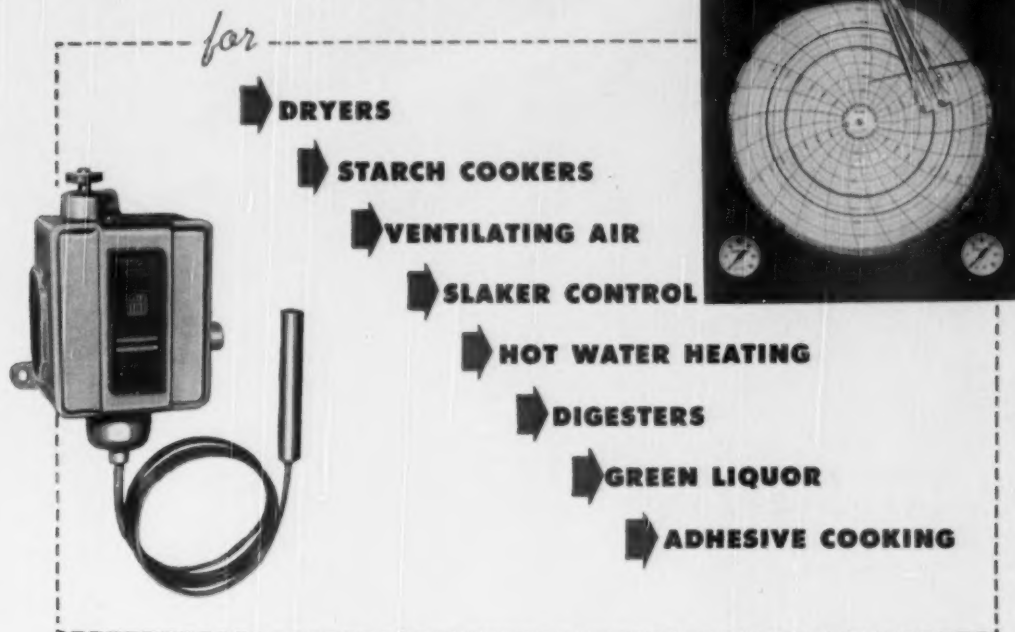


STRENGTH
COLOR
SERVICE
DEPENDABLE
SUPPLY

**POWELL RIVER
SALES COMPANY
LIMITED**

— 305 STANDARD BUILDING - VANCOUVER, B. C. —

*It's a short step to efficient,
economical temperature control*



... with Brown Temperature Controllers

BROWN TEMPERATURE CONTROLLERS rate first choice with practical production men in the Paper Industry . . . first choice for continuous and satisfactory service . . . first choice for inexpensive control.

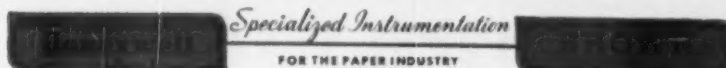
The full line (all variations of the two instruments pictured above) includes mercury, gas and vapor-filled systems . . . recording, indicating and non-indicating models . . . electric and pneumatic control, with On-Off, Throttling or Reset Action.

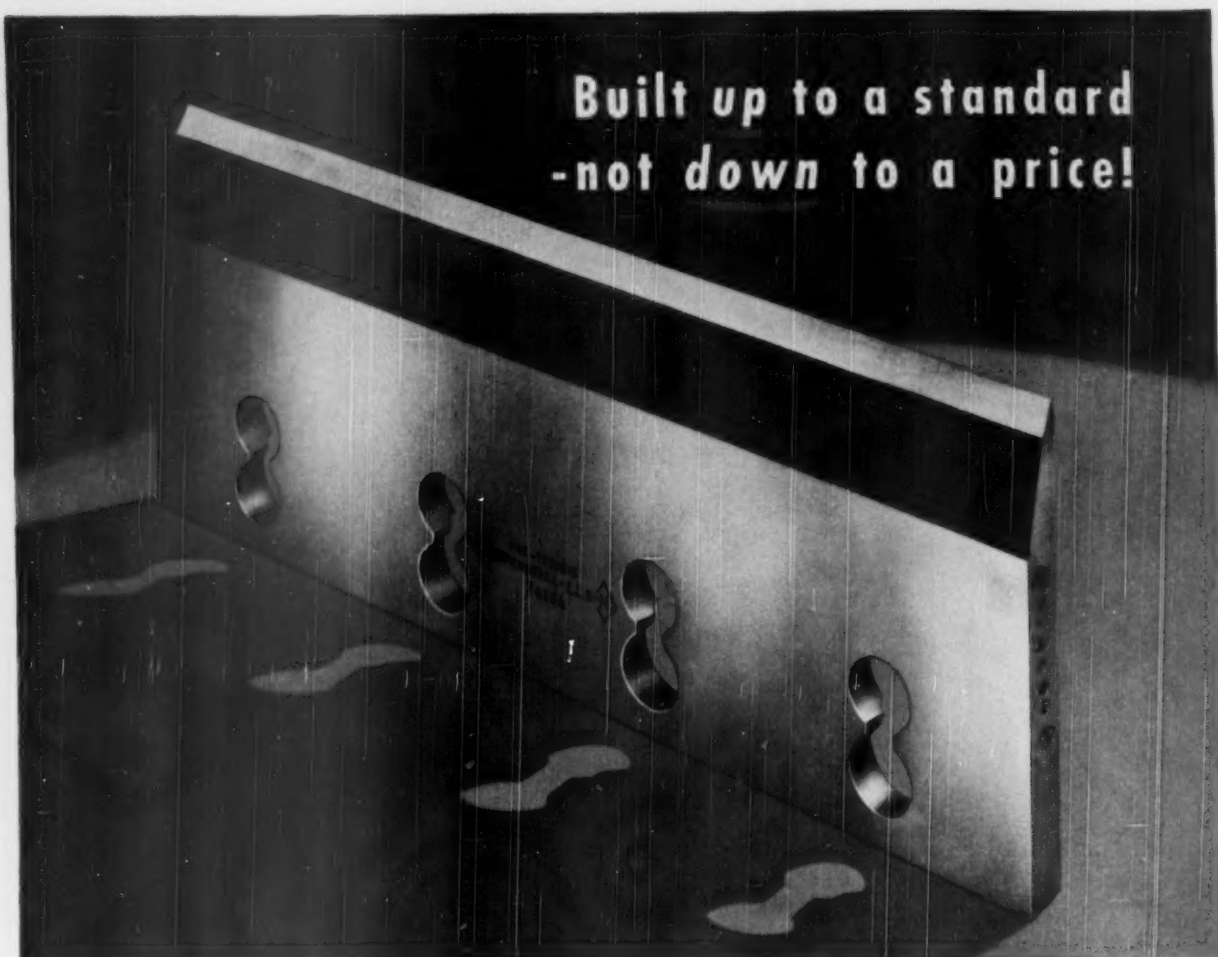
Year-in and year-out service in thousands of installations throughout the industry is a practical recommendation for you to specify Brown Temperature Controllers in your plant. Call in your local Honeywell engineer for a discussion of your needs . . . he is as near as your phone!



MINNEAPOLIS-HONEYWELL REGULATOR CO.
BROWN INSTRUMENTS DIVISION
4438 Wayne Ave., Philadelphia 44, Pa.

Offices in 77 principal cities of the United States, Canada and throughout the world





Built up to a standard
-not down to a price!

Heppenstall E. I. S. Chipper Knives

It's the overall *lifetime* cost of your chipper knives—not first cost—that points the way to real economy in chip production. That's why it pays to use Heppenstall E.I.S. Chipper Knives!

To be sure of top quality, Heppenstall makes its own special analysis steels in electric induction furnaces . . . tempers these steels to give you exactly the characteristics you need for a clean-cutting, long-wearing knife.

Because they combine fine steels and correct designs (including standard slot dimen-

sions), Heppenstall solid alloy chipper knives operate more hours between grinds, reduce chipper "down-time", produce fewer over-size chips with less sawdust waste.

If you're truly economy-minded, order a set of Heppenstall E.I.S. Chipper Knives today and prove their outstanding advantages under your own operating conditions.

Look for the *tan* color on the ends of each knife and shipping box for quick identification.

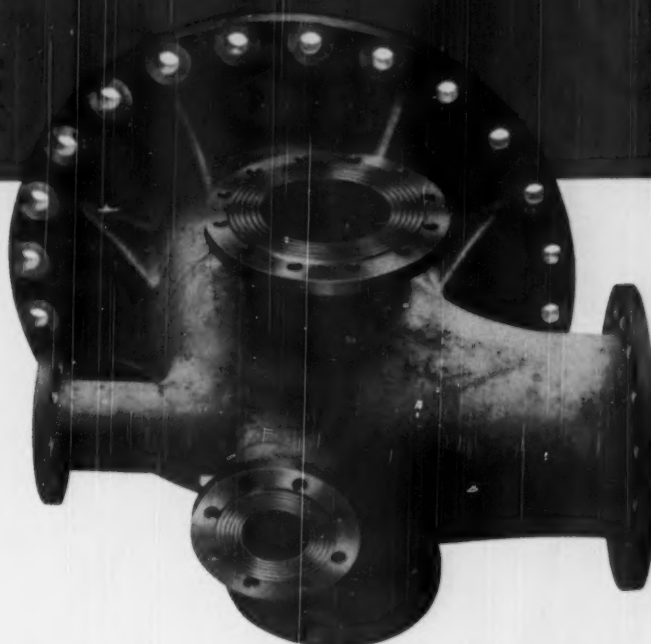
HEPPENSTALL COMPANY
PITTSBURGH 1, PA.



Overcome Corrosion, Heat and Abrasion

in Your PULP MILL

Regular Bulletin 1500 20 King and
of 1000 400 40 (Add page 222)
for ordering, including materials,
values, prices and quantities.



Lower operating costs, fewer shutdowns and increased production are the rewards for overcoming the three headaches of corrosion, heat and abrasion.

And here is the easy way to do it—turn the problem over to ESCO, and let them work it out.

Through 20 years experience in casting stainless and high alloy steels, ESCO metallurgists have encountered a multitude of problems in corrosion, heat and abrasion. These are studied individually, and regular or special

analyses best suited to the particular application are selected.

ESCO engineering facilities are available when desired for designing equipment of whatever size and character may be wanted. Manufacturing facilities are adequate for any production, and processes of manufacture at all times are under close control of the metallurgical laboratory.

ESCO welcomes consultation with pulp mills on problems of corrosion, heat and abrasion. See the ESCO office nearest you or write us direct. Our catalog of stainless and high alloy steels in process equipment is available upon request. Use the coupon.

ESCO

STAINLESS AND
HIGH ALLOY STEELS

ELECTRIC STEEL FOUNDRY

2166 N. W. 25th Avenue, Portland 10, OREGON

SALES OFFICES AND WAREHOUSES:

CHICAGO, ILL.	LOS ANGELES, CALIF.
EUGENE, OREGON	NEW YORK CITY, N. Y.
HONOLULU, T. H.	SAN FRANCISCO, CALIF.
HOUSTON, TEXAS	SEATTLE, WASH.

SPOKANE, WASH.

IN CANADA — **ESCO** LIMITED, VANCOUVER, B. C.

ELECTRIC STEEL FOUNDRY
2166 N.W. 25th Avenue, Portland 10, Oregon

Please send me your catalog on stainless and high alloy steels in process equipment.

Name

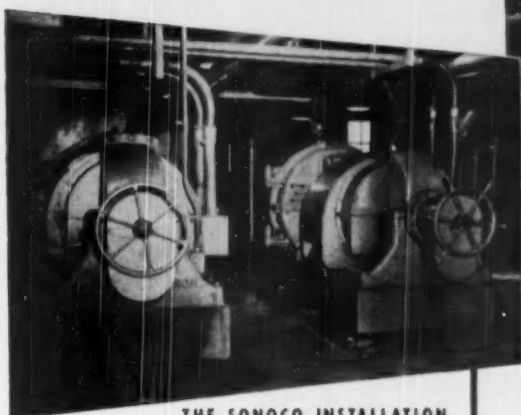
Company

Address

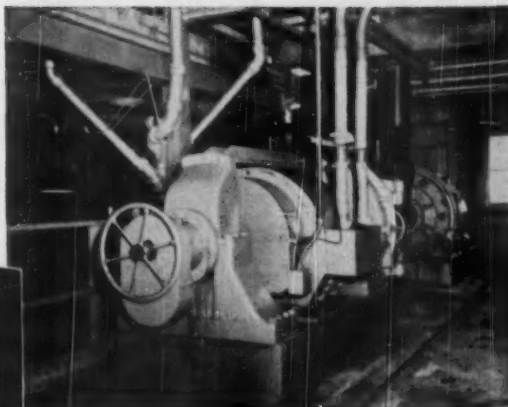
City

Zone State

Mills that compare Refiners



THE SONOCO INSTALLATION
Hartsville, S. C.
Showing Sprout-Waldron Refiners
for Semi-Chemical Pulping



choose

Sprout-Waldron

The many recent installations of Sprout-Waldron Refiners for semi-chemical pulping prove—that Sprout-Waldron Refiners are definitely preferred for this type of operation

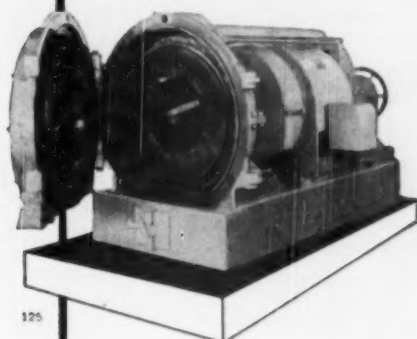
S/W Refiners do a wide variety of jobs—all of them thoroughly and economically. Here are some applications: refining kraft, soda, and sulphite knotted and fine screen rejects; hogged bull screen rejects; knotted and second screen rejects of raw groundwood; semi-chemical chips of all kinds; spent chips after extraction process; bagasse, straw, and similar grasses; breaking down lumps in reclaimed waste paper stock; reduction and refining of rag and other half stocks, etc., etc.

But these rugged, precision engineered Refiners can do any kind of pulping—do it well and with great economy.

Their exclusive peripheral control ring feature provides great flexibility of adjustment, so that you can produce a wide variety of pulp characteristics. With the S/W Refiner you can pinpoint exact pulp requirements.

Initial investment is comparatively low, and inexpensive long-life plates are available in many styles. High production rates; economy in power consumption; ease of operation, adjustment, and maintenance give you other important advantages.

Our representative will be glad to explain how Sprout-Waldron Refiners can increase your output and save operating costs . . . or let us send you our Bulletin R-748. Address Sprout, Waldron & Co., Inc., 32 Waldron Street, Muncy, Penna.



125

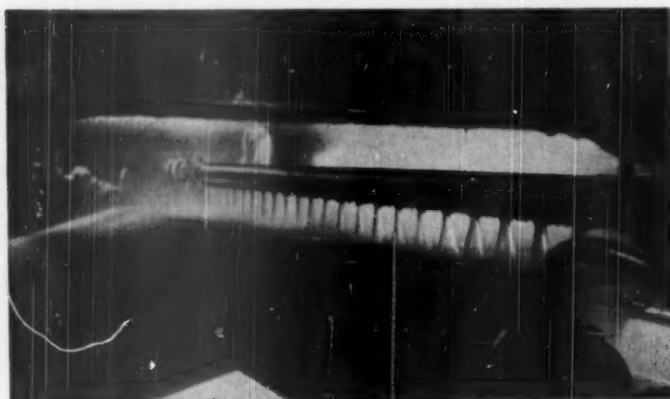
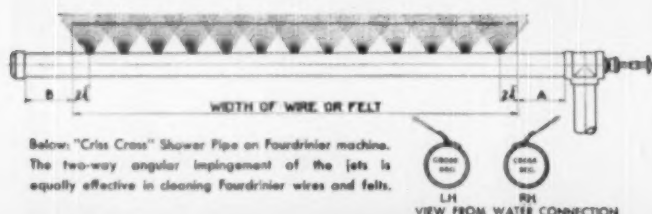
March 1950

Sprout-Waldron

Manufacturing Engineers

SINCE 1864
MUNCY, PENNSYLVANIA

MOORE & WHITE "CRISS CROSS" SHOWER PIPES use less water— clean FOURDRINIER WIRES • PAPER MACHINE FELTS • SCREEN PLATES more efficiently



MOORE & WHITE "Criss Cross" Shower Pipes with their overlapping jets wash paper machine wires and felts completely clean. No fibres adhere, to be pressed into wire or felt and leave marks in the paper.

There is no clogging to reduce the efficiency of rotary screens . . . none of the ridged wire and streaked paper which result from clogged nozzles in a Fourdrinier shower. These pipes are not only

effective but efficient. They do their work well with minimum water—saving on water costs. Water savings of up to 75 percent are reported by users.

Scientifically Designed— Precision-Built

In the Moore & White "Criss

Cross" Shower Pipe, the jets are spread fanwise by striking deflectors attached to the pipes. These jets overlap, so that spots directly under the jet center are cleaned by two successive jets striking at opposite angles. The wire and felts are flushed perfectly, and screen plates are kept working at full capacity. So free from tendency to clog are the shower jets that white water may be used.

Clearing the jets is done by drawing hollow brass wipers back and forth through the shower pipe. These wipers are attached to a plunger rod operated by a knob from the pipe connection end.

Moore & White "Criss Cross" Shower Pipes are made of brass, in sizes to suit the requirements of your wire, felt, or screen. When inquiring or ordering, please specify the width of wire or felt, as indicated in the accompanying drawing, and state whether, as viewed from the pipe connection end, *right-hand* or *left-hand* jets are required.

The MOORE & WHITE Company

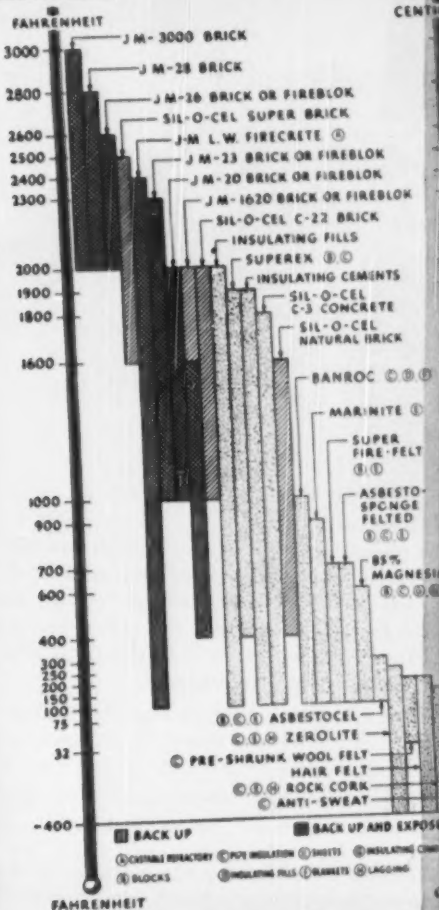
15th STREET AND LEHIGH AVENUE • PHILADELPHIA 32 • PA.

CUSTOM-BUILT MACHINES FOR MAKERS OF PAPER AND PAPERBOARD

Represented on the West Coast by Dan E. Charles Agency, 618 Jones Building, 1331 Third Avenue, Seattle 1, Washington

Ready
reference
chart...

Johns-Manville THERMAL INSULATIONS



*Yours...
for better
insulation service!*

Now, you can see at a glance the recommended insulation for every temperature range, from minus 400F to plus 3000F.

It's all on this convenient Johns-Manville Thermal Insulation Chart (11 1/2" x 18") available for hanging in your office or on your plant wall.

Each insulation in this group of Johns-Manville products is tailor-made to do a specific type of job best. And, as part of the Johns-Manville Insulation Service, specialists are available to help you with present insulation problems... or with those connected with future plans.

By having these men select and apply Johns-Manville insulations, you will be dealing with men who have grown up in the business. You'll find that it will pay, in the long run, to have these experts help you... because they have to their credit more man-hours of insulation application experience than all other similar types of organizations combined.

For your copy of this chart, just fill in and mail the coupon below.

Johns-Manville
Box 290
New York 16, N. Y.

Please send me copy of Johns-Manville Insulation Chart IN-6D.

Name _____
Title _____
Company _____
Address _____
City _____ State _____
PP-2

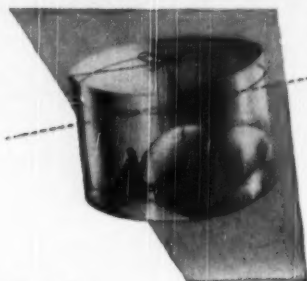
FOR EVERY TEMPERATURE



EVERY



YOU'RE LOOKING THROUGH A TREE



Many types of wearing apparel, drapes, and other textile products are made of yarns produced from highly purified wood cellulose.



Automobile and truck tires have longer life if they are made with viscose rayon cords, which are produced from wood cellulose.



There are other products made from purified wood cellulose—photographic film, vulcanized fiber, lacquers, to name a few.

The transparent material that protects this lady's hat started out as part of a tree. Cellulose acetate it's called—it is made from highly purified cellulose derived by chemically processing wood. You will find flowers as well as hats packed in this material, and a variety of toiletries and other articles where both product protection and eye-appeal are important.

Another familiar transparent material—cellophane—is used even more extensively for packaging purposes, particularly for foods. It, too, is made from highly purified wood cellulose.

That is why, when you inspect a product through a transparent wrapping, the chances are you are "looking through a tree."

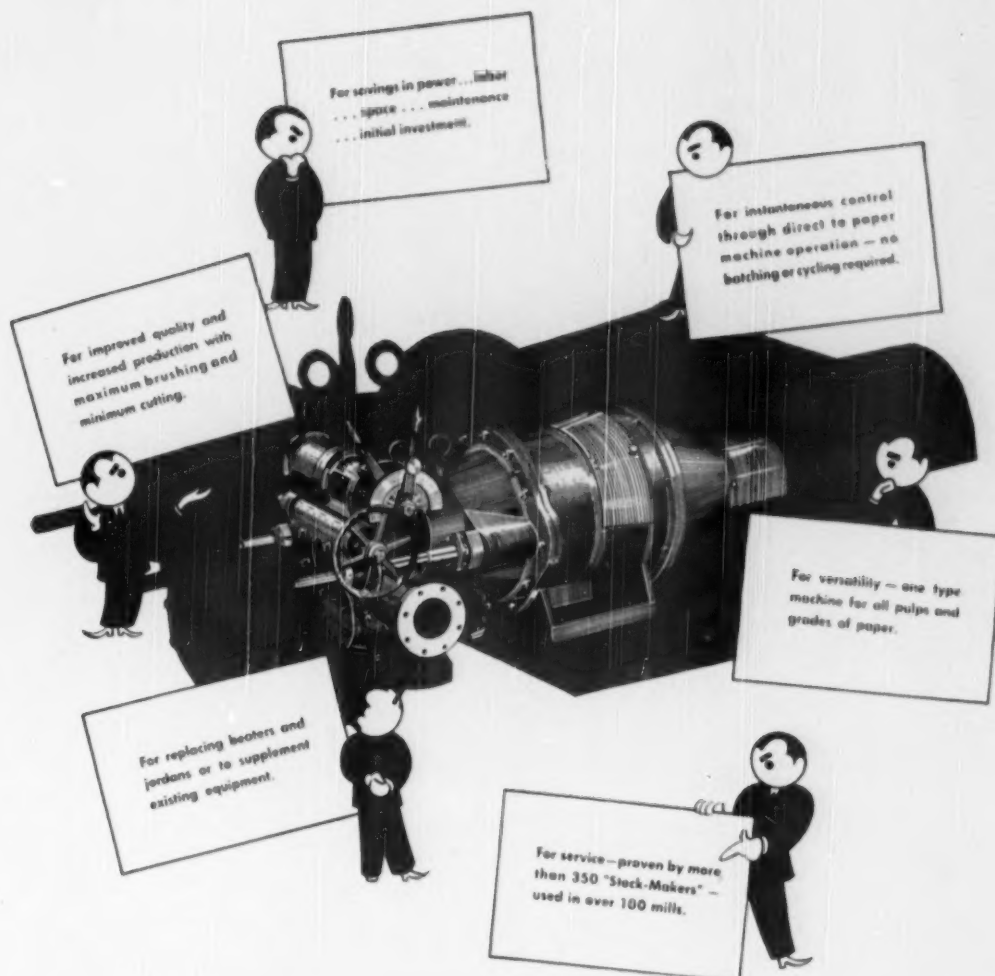
Rayonier does not make cellulose acetate or cellophane. It is our job to convert trees into highly purified wood cellulose from which transparent packaging materials—and many other useful products—are made. We supply highly purified wood cellulose in a number of types, each developed to give best results in making the various end products for which it is used.

RAYONIER

INCORPORATED

EXECUTIVE OFFICES: 122 East 42nd Street, New York 17, New York • MILLS: Hoquiam, Port Angeles, Shelton, Washington; Fernandina, Florida

PRODUCER OF HIGHLY PURIFIED WOOD CELLULOSE for TEXTILES • TIRE CORD • CELLOPHANE • PLASTICS



Any way you look at it!

The Morden "Stock-Maker"
is superior for
Beating and Refining

**FOR SPECIFIC
INFORMATION
CONTACT**

UNION MACHINE COMPANY

in Canada

The William Kennedy & Sons, Ltd., Owen Sound, Ontario

in England

Millspaugh, Limited, Sheffield

Eastern Sales Representative: Union Machine Company, Fitchburg, Massachusetts

March 1950

29

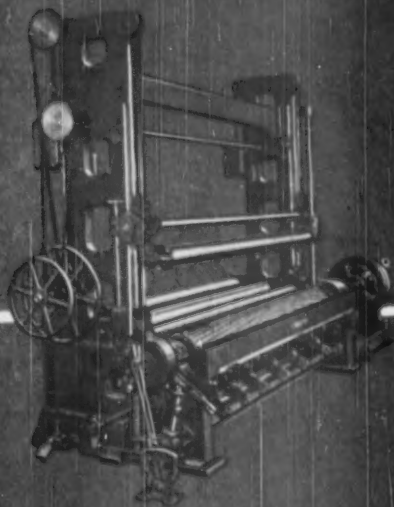


ever measure a FANEGA?

in Argentina you'd get $3\frac{1}{2}$ times more
than with the Peruvian fanega.

So with Langston Slitters and Roll Winders
—they deliver unvaryingly
a full measure of highest quality rolls.

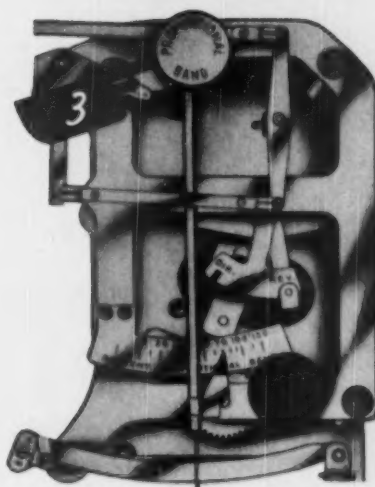
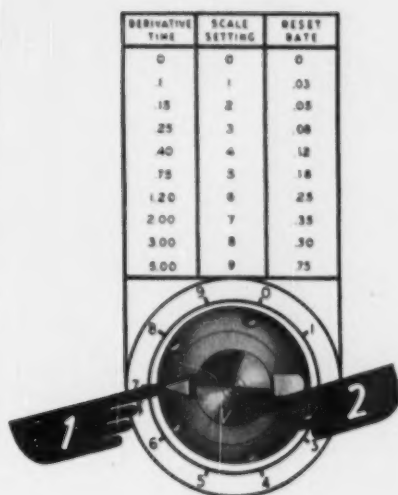
Samuel M. Langston Company,
Camden, New Jersey.



SLITTERS

Langston

ROLL WINDERS



**if you use ... or plan to use ...
automatic control instruments**

you should investigate

these **THREE EXCLUSIVE ADVANTAGES** you get in

BRISTOL series 500 air-operated controllers

- 1. Reset Rate ...*
- 2. Derivative Time ...*
- 3. Proportional Band ...*

**ADJUSTMENTS ARE ACCURATELY CALIBRATED
AND EXACTLY REPRODUCIBLE**

The reset scale is calibrated in actual reset rate. The proportional band scale is graduated in percent of proportional band. The derivative scale is calibrated directly in minutes.

This makes possible the exact duplication of controller adjustments for any process throughout a national organization.

It also makes possible the replacement of controllers on a process with full assurance that such replacements will exactly duplicate the performance of

the original—eliminates the cut-and-try method of arriving at the original setting—saves hours by cutting down on shut-down time.

Accurate reproducibility is only one of the many advantages you get in Series 500 Air-Operated Controllers which exemplifies the outstanding instrument engineering Bristol puts into its complete new line of Series 500 recording and controlling instruments—products of over 60 years of instrument experience.

Write for new Bulletin A120 on Series 500 Air-Operated Controllers. **THE BRISTOL COMPANY**, 142 Bristol Road, Waterbury 20, Conn.



BRISTOL

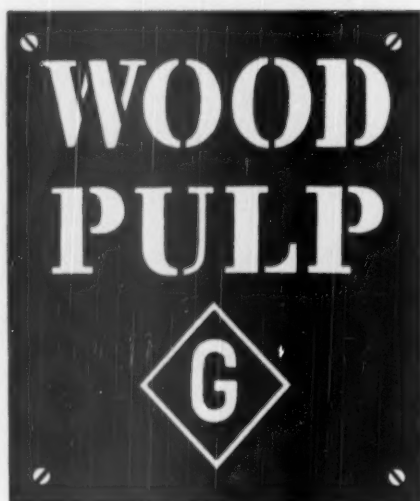
*Engineers process control for
better products and profits*

AUTOMATIC CONTROLLING, RECORDING AND TELEMETERING INSTRUMENTS

March 1950

31

Established 1886



"The past is gone and static.
The future is before us and dynamic.
Each day brings with it new frontiers."

CHARLES F. KETTERING

America is—and always has been—dynamic. The challenge of a steadily accelerating paper consumption the world around, coupled with the stream of ever new and wonderful pulp and paper products, assures a multitude of opportunities for the future.

Whatever your requirements in Bleached and Unbleached Softwood and Hardwood Sulphites, Sulphates, Soda and Groundwood, we should like to work with you.



GOTTESMAN & COMPANY

— INCORPORATED —

22 EAST 40th STREET • NEW YORK 16, N. Y.
EUROPEAN OFFICES: Birger Jarlgatan 8, Stockholm, Sweden

PULP & PAPER

MARCH 1950
Vol. 24 No. 3
Member Audit Bureau of Circulations
Contents copyrighted, 1950



The Production and Management Journal Covering
North America's Wood Pulp, Paper, Paperboard
and Cellulose Industries

by MILLER FREEMAN PUBLICATIONS, INC.

MILLER FREEMAN	President	CHARLES L. SHAW	Canadian Editorial Director
LAWRENCE K. SMITH	Manager	W. E. CROSSBY	Forestry Editor
ALBERT WILSON	Editor	NARD JONES	Associate Editor
LUCILE AYERS	Assistant Editor	WILLIAM J. KREBS	Associate Editor
MILLER FREEMAN, JR.	Circulation Manager	ROBERT E. WALTERS	Associate Editor

PRINCIPAL OFFICES: NEW YORK CITY—370 Lexington Ave. (17), Tel. Murray Hill 3-9295 (Nard Jones; M. F. Bosworth, Business representative; Virginia Moonagh, Readers and Adv. Service).

NEW ORLEANS: 305 Baronne St. (12); Telephone RAYmond 4760 (W. J. Krebs).

CHICAGO: 3410 Bortau Avenue (41); Telephone AVenue 3-1392 (Robert E. Walters).

VANCOUVER, B. C.: 673 W. Hastings St., Telephone MArine 1520 (Chas. L. Shaw).

SEATTLE: 71 Columbia St. (4); MAin 1626 (Publishing Office). (L. K. Smith, Albert Wilson, Lucile Ayers).

OTHER OFFICES—Louis Blockerby, 534 S. W. 3rd Av., Portland 4, Ore.; Bu. 6348—Stuart Leete, 131 2nd St., San Francisco 5, Ca. 1-5887—Arthur Pansford, 124 W. 4th St., Los Angeles 13, Mo. 8194.

SUBSCRIPTION inc. North American Review Number—\$3 for 1 yr. and \$5 for 2 yrs. in U. S., Canada, Mexico and other Pan American Union nations (\$4 for 1 yr. and \$7 for 2 yrs. in other countries).

"The Cellulose Age" EDITORIALS

The Mud Bay Fish Kill Mystery

The ways of the sea are frequently still a mystery, even to the William Beebes and other recognized submarine scientists. But let a few waves wash up a batch of fingerlings or dead fish of any kind on a beach within 20 miles or more of a pulp mill, and the pseudo-scientist-reporters of some newspapers, the professional bleeding-heart "sportsmen," and others of their ilk, will tell you—and right now—that it was pulp mill waste liquor that killed those fish.

This happens everywhere that there are pulp mills. Recently the Hearst Seattle newspaper, the Post-Intelligencer, featured prominently a picture of numerous dead fish on a Puget Sound beach to illustrate an article attacking pulp mill pollution in the vicinity. It mattered not that the mills denied the accusation nor that state fisheries and pollution authorities said they did not know the cause of the kill.

Candle fish and herring are always numerous in those waters and may be frightened ashore by larger enemies or killed by discharges from big ships or some strange plague of the seas, like the oft-reported deadly "red wave."

If pulp mills, running 24 hours a day, were to blame, why shouldn't such kills be more or less continuous rather than rare events?

In this connection, there was some very significant news in March of 1949 which should be known by all the pulp mills of the continent which are placed from time to time on the defensive by these phenomena.

A year ago, in Mud Bay, Chatham Sound, British Columbia, a mass of dead herring was found on the beach, measuring 190 yards long, 35 yards wide and a foot deep, estimated in excess of 1,000 tons—many times the quantity found on the Puget Sound beach.

The Fisheries Research Board of Canada—after exhaustive research—could offer no reason for the disaster in Mud Bay. There is not a pulp or paper mill within 250 miles of the spot!

(Exclusive articles on practical developments in research for pollution control are published on pages 36-38-41 of this issue.)

More Paper Towels for N. Y. Kids

Kids of Manhattan are disturbed because the Board of Education plans taking its "hand washing program" clear through to the eighth grade. It now reaches only the sixth grade by means of a \$150,000 budget for hand washing—a terrific municipal waste in the eyes of thousands of junior New Yorkers, but a nice trend in the view of paper towel manufacturers.

The Sun and the Newsprint Industry

The 117-year-old New York Sun announced it "folded" because of high cost of newsprint and labor and it is always a tragic event when any great newspaper "dies." But a considerable portion of the Sun's newsprint supply was coming from Finland, and, of course, probably all of it from outside the borders of the U. S.

The domestic newsprint industry long ago became only a faint shadow of what it was a quarter of a century ago. The American press brought the pressures that deprived this former important American industry of any protection from foreign competition and pounded down the price in the lean years to the point where paper companies found it more profitable to make almost any other kind of paper than newsprint.

Now we have the spectacle of the U. S. Congress endeavoring to investigate what some of its members call a newsprint "monopoly" but which is almost entirely outside the borders of the U. S. and the jurisdiction of the American Congress. Today, a goodly number of the newsprint mills which still exist in the U. S., and that includes the new one at Coosa River which is described in an exclusive feature article in this issue, are owned entirely or principally by newspapers or groups of newspapers. Several years ago in this column, we suggested that if newspapers wanted more newsprint made in the U. S. they would probably have to build their own mills as there were few experienced paper companies willing to risk investment in that product, which is dominated by so many politically powerful factors.

IN THIS ISSUE—

About Cover Picture.....	34	COOSA RIVER MILL.....	44
Machinetender.....		Crossett's New Machine.....	62
Munchausen.....	35	Late News Events.....	66
SULFITE WASTE LIQUOR, etc.—		Idaho Mill Manager.....	72
Rosenblad Evaporator.....	36	O&M Mill Modernizes.....	72
Northern Paper Mills.....	37	Oregon Board Mill.....	80
Yeast Plant Report.....	38	Calendar of Events.....	97
Coast Mills Get Orders.....	38	COAST ENGINEERS. 44 and 65	
Ammonia Pilot Plant.....	38	Development Engineer-	
Fox River Mills.....	38, 66	ing by P. R. Sandwell.....	44
Montreal Papers on		Other Everett Talks.....	65
Liquor.....	41	PULPWOOD SECTION:	
Latest MgO Report.....	41	Wood Evaluation by	
Espanola Stays Open.....	66	Photo by Dr. T. A.	
MONTREAL-NEW YORK 34-41		Pascoe.....	76
Sketches of APPA-CPPA		Colorado Timber Sale.....	78
Leaders.....	34	PERSONAL NEWS:	
APPA-CPPA Meetings.....	39	Southern.....	62
New Equipment.....	40	Middle West.....	69
Technical Meetings		Northeast.....	74
Reports.....	41	Pacific Coast.....	91 and 93
		Canadian.....	94

LOOK for our annual NORTH AMERICAN REVIEW
NUMBER published on April 30—a complete
statistical review.

INDUSTRY'S 1950 LEADERS

Olmsted, Foley Among Youngest Ever Chosen

In our cover picture for this month are shown the two 1950-51 leaders of the Canadian and American pulp and paper industries — the top management men chosen as the standard-bearers for each of these great industries of North America for the next year.

Our cover picture symbolizes the complete representation which has been achieved for this entire continent—one man from the Far East, one from the Far West—men who are interested in, and have an unusual grasp of all the problems and represent all phases of production in the industry from the tree to the pulp and the paper and from production to sales.

As these two appear on our cover, Harold S. Foley of Vancouver, B. C., the Canadian leader, is at lower left; George R. Olmsted, Jr., of Boston, Mass., new American leader, at upper right. Despite Mr. Foley's white hair, he is still on the sunny side of 50 and Mr. Olmsted is 47 this year, making them two of the youngest leaders on record.

The Canadian Pulp and Paper Association decided to break tradition in electing its chairman, Mr. Foley, president of Powell River Co., for a second term. The American Paper and Pulp Association elected Mr. Olmsted, president of the S. D. Warren Co., as its new president after his unanimous selection by a nominating committee.

Inasmuch as there have been many Southern and Midwest mill executives acting as president for APPA, and because Canada cannot very well produce a candidate from below the boundary, everything was fair and square. However, both men were born in Midwest states, Mr. Foley in Minnesota and Mr. Olmsted in Illinois.

As a record-breaking crowd at the CPPA luncheon in Montreal (700 attended the luncheon and many more were registered) broke into applause when he was introduced. Mr. Foley cracked that he would be accused of taking another term "to stay in the east and avoid the winter weather," referring to freak weather that was baffling both coasts, and giving Montreal three days of spring for the convention while British Columbia was literally storm-bound.

Mr. Olmsted's Career

The new APPA president, Mr. Olmsted, was born in Evanston, Ill., in 1903. He attended Evanston Township High School and received an AB degree from Williams College in 1924. On graduation he joined S. D. Warren Co., where he worked through the mill for a period of two years, joining the Boston office in 1926.

He became sales manager in 1933; vice president and director in 1934, and president in 1944.

Mr. Olmsted is a director of Boston Safe Deposit & Trust Co., Dixie Mills, Inc., New England Mutual Life Insurance Co., Walworth Co., Inc., and West Point Manu-

facturing Co. He is also a trustee of Northeastern University.

Mr. Olmsted was chairman of the Book Paper Manufacturers Association in 1946 and 1947. He was a member of the board of governors of APPA in 1948, and in 1949 was elected a vice president and member of the executive committee. He now succeeds Cola Parker, of Kimberly-Clark, as association president.

Mr. Olmsted's company, S. D. Warren, is one of the most progressive in New England, with diversified operations in Cumberland Mills and Gardiner, Maine. The former produces about half its requirements in soda pulp, and has 13 Four-drainer machines from 56 to 152 inches, making lithograph, coated book, eggshell, box paper, etc., with capacity of over 350 tons a day. At Gardiner, are two machines making about ten tons of Bible and tissue specialties. Mr. Olmsted's office are at 89 Broad St., Boston.

Mr. Olmsted's trips to the West Coast used to be as frequent as Mr. Foley's travels to the east are now, a point that makes them both better fitted than otherwise to represent continent-wide industries.

S. D. Warren Co. was early involved in the development of the Pacific Coast pulp industry. The Warren Co. was one of the early customers of the Rainier Pulp Co. at Shelton, Wash., and, subsequently, invested a substantial sum in the building of Olympic Forest Products Co., at Port Angeles, Wash., and from 1930 to 1950 secured a portion of its long fiber pulp supply from Rayonier, Inc. (successor of Rainier and other mentioned firms)—either from the Port Angeles mill or the Grays Harbor mill.

Prior to the war, Mr. Olmsted visited the Pacific Coast mills at least once a year.

Mr. Foley's Career

A personal description of Mr. Foley, this by Charles Vining, witty president of the Newsprint Association of Canada, starts off: "Mr. Harold Scanlon Foley has nice white hair, wears violent neckties, lives in Vancouver, and is president of a pulp and paper enterprise known as the Powell River Co."

Few people who meet Mr. Foley for the first time would guess that he is a hard-working, dynamic and unusually successful business executive with varied and widespread interests that include lumber, wood pulp, paper, a steamship company, to say nothing of the responsibility for the welfare of one of the most attractive communities on the West Coast. His rare personal charm, his calm easy manner, his smiling debonair appearance seem to create around him a relaxed atmosphere even though he lives under the pressure of meetings, conferences and schedules.

Born in Minneapolis, Mr. Foley went to school in Kentwood, Louisiana, and graduated from Notre Dame in 1922. He acquired his initial business training in Florida where the Foley family has vast lumber interests, intertwined with the Brooks-Scanlon lumber empire. In 1924 he received his first assignment when he

was sent to Providence, R. I. to liquidate a lumber company, and later ran a chain of lumber yards in Florida.

In 1926 he took over and reorganized the Denham-Foley Lumber Co. which was the forerunner of the Foley Lumber Industries of Jacksonville, Fla. In 1929 he was appointed vice president and general manager of the Brooks-Scanlon Corp., at Foley, the Florida lumber town named in honor of his father.

The Powell River Co., of which Mr. Foley became executive vice-president in 1936 and president in 1940, is one of the largest producers of newsprint in the world.

Powell River branched into the manufacturing of wood pulp for the market soon after Mr. Foley had assumed his position as executive vice president.

Throughout his comparatively brief but active career, Harold Foley has displayed a knack for the reorganization and revitalization of business enterprises. Among his many personal assets is his deep, instinctive knowledge of people and his ability to get along with them. The careful cultivation of public and employee relations ranks high in Mr. Foley's business creed.

His eyes light up when the conversation turns to Powell River, the picturesque situated town, 70 miles from Vancouver. It has been one of his chief aims to make that town a model community in every respect.

Living in Vancouver where the company's executive offices are located in the Standard Bank Building, Mr. Foley makes frequent trips to Powell River, an overnight boat ride.

Mrs. Foley is the former Frances Burrows. The Foleys have three children, Marie, Harold, Jr., and Fran Sandra.

His brother, M. J. Foley, who recently moved from Florida to Vancouver, is now the executive vice president of the company.

Powell River has now reached a goal of close to 1,000 tons of newsprint production per day with eight machines, including one of the newest and fastest. It makes 200 tons of unbleached sulfite pulp per day, and its market pulp and newsprint with their colorful labels are familiar in many corners of the world.

35 European Experts Touring U. S. Mills

Probably the largest delegation of European pulp and paper experts ever to visit this country—35 of them from 12 nations—sailed for the U. S. in mid-February and will visit mills from coast to coast. After attendance at New York "Paper Week" they will work their way to Appleton, Wis., by Mar. 26. They will visit Weyerhaeuser and Longview Fibre mills in Longview, Wash., in April.

The trip, sponsored by ECA, brings industry men from Australia, Belgium, Denmark, France, Germany, Italy, Holland, Norway, Sweden, Switzerland, Turkey and Britain.

Their first visit will be at American Cyanamid Co.'s Stamford, Conn., research laboratories.

MACHINE TENDER Munchausen Stories

In this corner each month, PULP & PAPER publishes the "tallest tales" it can gather from pulp and paper industry men. As everyone knows there just aren't any better story-tellers. Try your hand at it—send us a story.

You may like to look up previous stories for an inspiration.

The December story (page 26) relates the amazing resourcefulness of any early day rayon pulp mill cook's helper who had just invented a way to blow ladies' bloomers directly from the digester when they went out of style.

January's came from an Arkansas mill executive—about how an Indian became a great man in his village twinkling a switchboard of red and green lights in a mill. In February the tale dealt with "Nosey", a long-armed papermaker.

PULP & PAPER pays \$5 for each story published and no questions asked; and we assure you the story does not have to contain even a shred of truth.

How about a tall story from you?

This month's story is from Frank J. Flaig (right), general superintendent of the Lock Haven, Pa., mill, of New York & Pennsylvania Co., Inc. Born of sturdy German stock on Aug. 3, 1891, in Lock Haven, Frank, like so many in that area, got his early experience in the brick industry. In 1910, young Frank started "knockin' shavin's" and "hustlin' broke" at the mill and after four years, he became a tour foreman.

Most of Mr. Flaig's education came from the school of hard knocks, but it never slowed him up. His increasing know-how and never-faltering drive brought its reward when he was made paper mill superintendent in 1926 and finally mill superintendent in 1948.

During early years, Lock Haven had to make the whole range of book papers and associated grades in a highly competitive market. It was a fight all the way, and a fight was always a challenge to Frank. If you really want him to get up a full head of steam, just tell him, "It can't be done!"

Mr. Flaig has the same terrific capacity for enjoyment of play as of work. He's a top-notch bowler and vociferous baseball and football fan. He plays a rollicking gin rummy game, and his poker is tops.

In this story about Gus, an old-time machine tender in Pennsylvania, Mr. Flaig vouches that it is substantially true. We leave it to you where the truth ends and the tall tale begins.



The Story of Gus— A Remarkable Man

There are still Pennsylvania paper-makers who remember Gus, the machine tender. Gus was a very big man. And a good part of this size was in his girth. He had a beer belly. Gus was proud of his size and he had no objection to the boys in the corner tavern taking his measurements and comparing them with whatever heavyweight champion was reigning at the moment. The boys at one time suggested matching Gus against Jim Jeffries and Gus was not adverse to it.

Wherever Gus worked, it was his habit to tend the machine—at least in quieter moments—in a semi-comatose state. He had obtained a tavern chair which he would lean against the wall of the machine building at a somewhat precarious angle and in it, hands clasped across his ample middle, he would doze away until some emergency called him into action.

He was thus dozing one night shift when the pulp mill blew up. This was a small Pennsy pulp mill at what will be an unnamed town. Nobody was injured but several nerves were considerably shattered and among them were some that belonged to Gus. He had never, until the explosion, been a nervous man.

But something did happen to Gus on that occasion and the proof of this came when the paper machine engine exploded. This was a steam engine located in a separate building, but when it exploded it made a noise that seemed equal to that of the pulp mill explosion, and it was closer to Gus.

A couple fellows were at the dry end, 100 feet from the opening that led to the finishing room. Gus was 'way up at the wet end, dozing in his chair against the wall. He was faced toward the head box.

As the explosion occurred the two men at the dry end started running into the finishing room. But despite their head start, Gus passed them and was well in the room before they even reached the entrance!

The reader will realize what effort and speed was involved here on the part of Gus. He had to extricate himself from the tilted chair, make a complete turn and run the full length of the machine. Yet he had overtaken the men at the dry end. One of the boys with a mathematical turn of mind did some measuring and calculating and clocked the other men over the 100 yard course. It became apparent that Gus, on the night the machine engine exploded, had beaten all human records going as far back as the Spartans. In fact, it looked as if he had that night outdone the speed of a cheetah, one of the speediest animals known.

So it was suggested that Gus be entered into competition and Gus was agreeable.

In practice heats, however, it was discovered that Gus was no good if he started in the regular way. But if he sat in his tavern chair, facing the other way, the results were excellent. At first no competing team objected to this eccentric method of starting because it seemed to impose a hazard on Gus. And later on, as Gus won again and again, and opposing teams did complain—well there was nothing in the rule book of those days to say that a runner could not make a sitting start ten feet behind the line, facing the other way.

The cameras and film in those days were too slow to catch him. Either the negative would show nothing except the track, or there would be just a wraith stretching horizontally from one edge of the negative to the other. The starting gun was sufficient to arouse Gus, due to the fact that his nerves had been so shattered by the pulp mill explosion and the engine blow-up.

It was natural that Gus should eventually become a contestant for the Olympics. He quit the mill, in fact, when he became champion runner of Pennsylvania, and of course he went on to the national championship. If sports fan readers don't remember him, it is probably because sports were not so much publicized in those days.

The old mill men then sort of lost track of Gus, and it was a long time before they heard why he never showed up in the Olympics. It seems on the way across he was dozing in his deck-chair one day against the whistle-stack. Right in mid-ocean the ship let go some kind of a signal, and of course you know what happened.

Yes, Gus leaped out of the deck-chair, made a complete turn, ran half the length of the ship, and cleared the stern rail. Observers say he ran at least four hundred yards in the air before gravity took hold and he dropped into the water. In fact, he dropped so far behind that efforts to rescue him failed entirely.

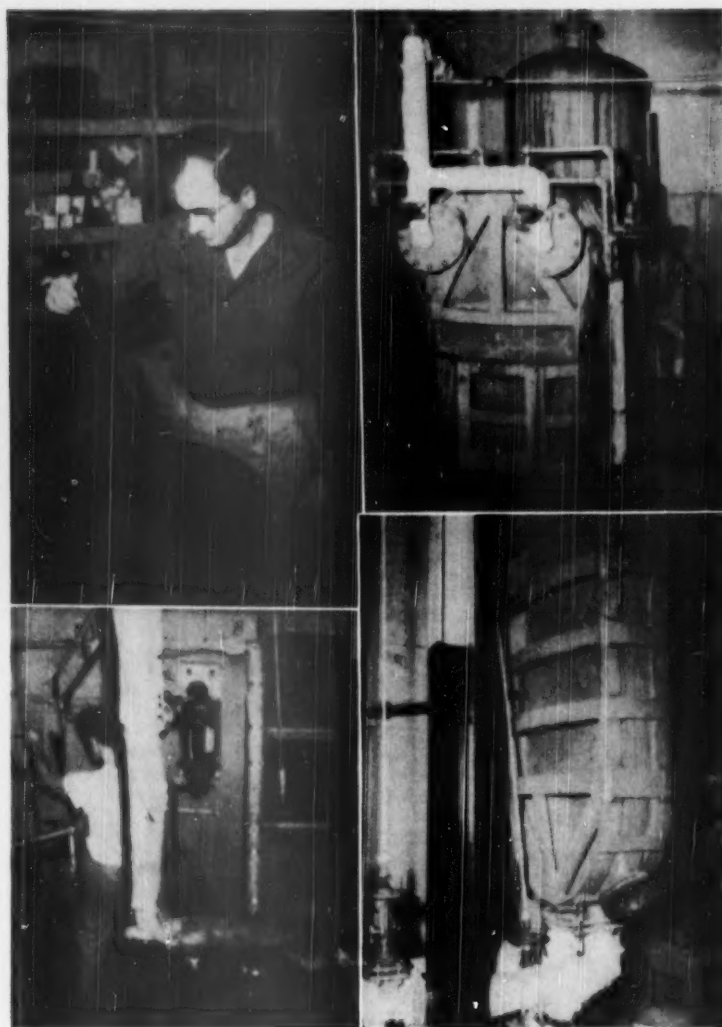
An old fellow who saw it happen said Gus cleared that stern rail without losing a bit of his stride. He probably would have done all right in the high hurdles, too, but the boys at the tavern never thought of that when they put him into training.

Big Meeting in Seattle Scheduled May 11-13

Plans are going forward for a big meeting in Seattle's Hotel New Washington May 11-13—the first three-way meeting ever held by the Pacific Coast Superintendents; Pacific Coast Technical Section and the Western Branch of the Canadian Technical Section.

Charles H. Reese, Nekoosa-Edwards vice president and national president of the Superintendents, will be a speaker and honor guest. A. C. McCorry, St. Regis, Tacoma, is general convention chairman; Fred Armbruster of Dow Chemical, Seattle, is treasurer; Gerry Morrell, of Van Waters and Rogers, Seattle, is registration chairman; Bill Clines, General Chemical, Seattle, and Walt Salomonson, Draper Felts, Portland, handle entertainment; Joe McQuaid of Esco, Seattle, heads golf, and Spud Hartman of Weyerhaeuser, Everett, Don J. McLaurin of Powell River Co., Powell River, B. C., and Irwin Thieme, Soundview, Everett, are arranging technical and general programs.

FIRST REPORT ON APPLETON TESTS SULFITE EVAPORATION



HERE ARE FIRST PICTURES for publication of the Interlake sulfite liquor evaporator pilot plant—all views taken by PULP & PAPER's Middle West editor at Appleton, Wis.

Upper left: LEONARD HOOD, Development Engineer, testing barrel of liquor from evaporator; notes reading of 32% solids. Nearby container has 75% solids, resembling soft tar.

The rest of these pictures are of pilot plant and each scene is in approximate relation to the other. For instance, two views at right are upper and lower floor views of General American Rosenblad evaporator—the plate unit extending through floor as shown in top picture. There are 5 channels formed by spacing and sealing off rectangular 316 alloy stainless steel plates. Channel switching by Rosenblad system is accomplished at top or head of evaporator (upper right) and requires few minutes. The tank in this view holds liquor.

Lower left—This equipment is to left of view to its right on lower floor. Between technician's left hand and his head, condensed liquor may be seen coming from evaporator. Because tank capacity was filled, experimental run of liquor was going back down drain. Various pumps and valves are used.

The evaporating system commonly referred to as the Rosenblad evaporator is one of the methods under consideration by a number of sulfite pulp mills now faced with the task of sharply curtailing the amount of their spent sulfite liquor effluent.

PULP & PAPER, in the accompanying views, presents its own photographs of the pilot plant at the Interlake mill of Consolidated Water Power & Paper Co., Appleton, Wis., to give a glimpse of what a small one-effect system might look like. This is the evaporating plant operated experimentally by the Sulfite Pulp Manufacturers' Research League (of Wisconsin and Michigan).

After many months of operating this little plant, the league has proven this method of evaporation to be satisfactory and successful with strong liquor and under certain other conditions generally attainable. Of course, this is just one of the steps that must be surmounted in disposal of use of the liquor. The experimental evaporating at Interlake has contributed a lot of data and engineering ideas that are of value to the fabricating and planning of large-scale units.

General American Transportation Corp. (Process Equipment Division) installed the Interlake unit fabricated by the licensor, A. B. Rosenblad, patentee, formerly of Stockholm and now of New York.

Already this research at Appleton has circumvented some cost features that were prohibitive. General American will call the system the Conkey Flat Plate Heating Surface Evaporator.

During evaporation, scale forms on the heating surfaces. The Rosenblad system removes this scale by channel switching. This simultaneously cleans off the scale while normal evaporation operation proceeds. Frequency of channel switching will depend on the individual operation, but the Interlake plant usually switches

Here is the first story to be published on the Rosenblad switch system type of evaporator for disposal of sulfite waste liquor as it has been tested by the Wisconsin and Michigan mill's Research League in a small installation at Appleton, Wis.

PULP & PAPER will not advocate any particular solutions for the grave liquor disposal problem which is now become the No. 1 headache of sulfite mills from Coast to Coast and in some states, an urgent problem.

There are other manufacturers, also, of excellent custom-built evaporators. They all have special approaches to this problem and their advantages are explained in the advertising pages of PULP & PAPER each month.

But the eyes of the sulfite industry have for a long time been on this industry pilot plant at Appleton and so we are glad we can bring our readers this first authoritative account.

Evaporation is just one of the steps in disposing of liquor. Burning and recovery are other steps bringing forth many vexation problems of their own. Companies like Babcock & Wilcox, Combustion Engineering, Foster-Wheeler, the precipitator manufacturers and others, have assigned their specialists to help the industry solve them.

The Wisconsin and Michigan mills—for the moment—are giving serious thought to this Rosenblad evaporator, which permits them to retain their calcium base cooking. They have also sponsored the yeast plant at Rhinelander, Wis., as a possible solution and in this issue we publish further reports on that plant.

We are also publishing on page 41 the most recent report on the magnesia base sulfite cooking system, advocated particularly by its proponents for some of the larger pulp mills.

once each day. At Interlake it is a manual operation and takes less than three minutes.

The switching occurs between the steam sides and the liquor sides. The scale-fouled surfaces are cleansed when the vapor and condensate passes along these plates, which in the previous period, carried the boiling liquor.

Fundamentally, the change in the design from earlier evaporators, is from tubes to plates. The plates are of stainless steel to prevent deterioration of the metal from acids. The plates are rectangular sheets placed lengthwise. They are separated by spacers and sealed off to form channels. The Interlake unit has five channels in a one-effect system. Most of the commercial units will employ multiple effects and even numbers of channels.

Through every other channel passes steam for heating, with alternate channels carrying the liquid that is being evaporated.

It has been explained, for example, that in a triple effect system, evaporating vapors are counter current and vapor produced in No. 3 is used to heat effect No. 2; and No. 2 to heat No. 1. The steam itself first goes through an atomizer where it is loaded with liquor condensate.

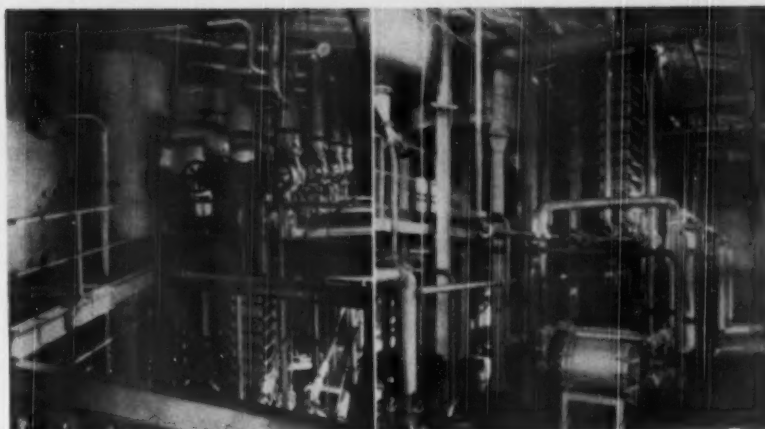
The little Interlake single-effect unit reduces comparatively strong liquor (from digesters and not diluted by wash waters) to approximately 50 to 55% solids at the rate of 300 gallons per hour. The operation is constant and often its operating day has run through 7,000 gallons of the sulfite liquor.

A lot of this condensed liquor is being shipped to firms that develop combustion equipment where experiments are being conducted to provide suitable means of burning the liquor after evaporation. This Interlake mill provides a ready source for the experimental burning supply of condensed liquor.

It appears at this time, that use of this evaporating system will depend on greater developments in burning. The evaporated liquor has a high BTU content. Possible recoveries and disposal of fly ash in cases where the orthodox calcium base is retained in the pulping system — as at Interlake—are remaining critical problems, not only economically but even from a realistic disposal point of view.

In calcium base evaporation and burning, the calcium base ash that remains is expected to run about 200 lbs. to a ton of pulp. In a 500 or 600-ton a day mill, this is a tremendous amount to use or get rid of. Unfortunately, some of the biggest sulfite mills are in regions where there seems to be absolutely no demand from farmers for use of this ash as fertilizer—the only important possible outlet now known.

General American Transportation Corp. is sole U. S. licensee for the Rosenblad system. H. M. Hunter is manager of the G. A. Process Equipment Division in New York, with P. M. Sadler as sales engineer and Halvar Lundberg of Seattle, as western representative.



UPPER FLOOR (left) and LOWER FLOOR (right) VIEWS of a full scale Calcium Base Sulfite Liquor Evaporation System installed in a Scandinavian pulp mill with the Rosenblad Channel Switching System. This is a full scale model in commercial operation, similar to the small one-effect system of the Appleton, Wis., pilot plant shown in the other pictures which are shown with this article.

ROSENBLAD SPIKES STORIES OF LONG SWEDISH RESEARCH

Curt Rosenblad, president of the Rosenblad Co., 1270 Sixth Ave., New York, was shown an advance copy of PULP & PAPER'S first hand and exclusive story on the Rosenblad or Conkey flat plate heating surface evaporator pilot plant at Interlake, Wis., for sulfite liquor disposal or use.

"Admittedly the problem of burning after evaporation grows with the size of mills," he commented, "but this has not been serious in Sweden because of the small mills involved."

However, Mr. Rosenblad—who ought to know, as he has been one of Sweden's chief pioneers

in the field—said he was surprised because of the apparent widespread impression in the U. S. (which has been repeatedly given erroneous publicity in newspapers) that most Swedish mills over many years have been disposing or using their liquor.

Except for a few companies like his own, he said, real practical research began only after World War II. He pointed out, too, that only 12 of 54 mills in Sweden are using the equipment successfully, five more mills will be in the fold before the end of 1950.

His and another evaporation system are important practical developments in that country. But it has been U. S. and Canadian mills—not Swedish—which have pioneered in magnesia base and other research.

NORTHERN MILL ORDERS MACHINE Plans for Reducing Stream Problem

The Northern Paper Mills, Green Bay, Wis., an integrated sulfite pulp and paper mill, on Feb. 1, announced a modernization program for its papermaking.

Coming soon after the recent Green Bay stream pollution hearing where Harry Gochbauer, chief engineer at Northern, explained in detail (as spokesman for President Milan Boex) the Northern Paper Mill's plans for reducing flow of fibers to the streams, this latest announcement is further evidence of Northern's stated intention to remain an integrated industry in Wisconsin.

The order has been placed with the Beloit Iron Works for a Yankee paper machine, with a 172-inch wire width and a trim of 162 inches. The Yankee dryer will have a pressure of 125 psi and be 12 ft. in diameter. It will be driven by General Electric sectional drives. Delivery of the machine is scheduled for fall by Beloit and the completed installation should be ready for trials by the end of this year.

The existing mill building will be extended with a 450 by 100 ft. structure, two and three stories high. Other improvements include facilities for handling purchased pulp, dust collection system, ventilators and new converting equipment.

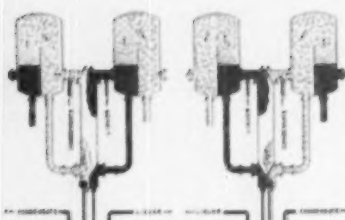
Northern Paper Mills is one of the Wisconsin sulfite firms asking its state pollution committee for an adequate period in

which it may prepare detailed engineering plans and specifications of buildings, processes and equipment for the material reduction of the amount of spent sulfite liquor channeled to the river at Green Bay. Milan Boex, its president, suggested that his firm be allowed a year to prepare and submit plans and such new developments that may aid the final solution. He offered to spend approximately \$50,000 for engineering research — an amount he felt necessary.

In the meantime, Northern has progressed in attacking the problem of fiber removal from the effluent. Over 90% of Northern's production is in lightweight tissue. The paper machines are operated on a closed system where white water is used again and again as dilution to thin stock.

But fresh water is used in the showers, creating an overage of white water. The extra is pumped back to the sulfite mill for washing pulp. Northern also has built a half-mile-long outfall sewer and at state suggestion the extra wash water has been diverted through this sewer.

In recent periods three Oliver vacuum filters were added. Soon a counter-current washing system will be installed in the bleach plant, to reduce effluent by about 3 million gallons per day. The company plans a screen house for woodroom and log pond effluent to filter wood bits.



Riverside, Bergstrom and Combined Locks Rulings

Technicalities of time underlie the main factors of the Wisconsin state pollution committee's refusal to issue an extension to three Wisconsin mills making paper but not pulp. The committee announced its ruling Jan. 17.

General consensus, expressed to PULP & PAPER'S Middle West editor, is that the state will cooperate fully with these mills as they formulate plans and institute changes to eliminate the pollution caused by washing off wood fibers into the streams. However, because these mills asked for more time after a previously stated deadline had been passed, the state said no.

Committee members are reported satisfied with the plans of the Bergstrom Paper Co., of Neenah, and the Riverside Paper Corp. of Appleton is keeping the committee posted on its progress.

Bergstrom is conducting surveys to conclude whether to build its own waste treatment plant or to dispose through the municipal plant belonging to Neenah-Menasha. It would be necessary to expand the municipal plant if Bergstrom uses it for de-inking wastes. This is to clean up the Little Lake Butte des Morts.

Combined Locks Paper Co. was also referred to specifically by the state committee, even though it is one of a number of valley mills asking more time. This firm has reported that all its sewers now discharging into the Fox River will be connected to the Kaukauna interceptor. Combined Locks has told the state committee about its investigation of a new cold process for de-inking, but this system encountered trouble in settling carbon inks. Combined Locks is trying to settle the carbon and discharge the remnant sludges into the Kaukauna system.

Ability of Yeast Plants to Remove BOD is Reported

At the recent Green Bay, Wis., hearing, Jesse M. Holderby, coordinator for the Pulp Manufacturers' Research League discussed Scandinavian yeast plants and several in the western zones of Germany. The Scandinavian plants of World War II time have been discontinued.

He reported material progress at Rhinelander, Wis., despite problems, many of which still exist. The Rhinelander pilot plant has demonstrated its ability to handle the quantities of total solids and sugar. It is operated jointly by the Research League mills.

The treatment efficiency, the ability of the yeast plant to remove BOD (biochemical oxygen demand) from sulfite liquor drainings, has shown a monthly average of 30.7% to 33.8% and for a given 6-month period on the liquor processed, 32.2%. This is well below the unofficial demands of the Wisconsin state pollution committee which has indicated a criterion of 70% elimination of all sulfite liquor reaching the streams.

During the 6-month period certain condensates have been discharged from the plant into the river, but these sulfite dioxide condensates will eventually be returned to the mill for reuse. Then treatment efficiency will be increased by 3.5%.

"In producing a ton of pulp, somewhat more than one ton of solids are dissolved from the wood used," said Mr. Holderby. "Forty to 50%

of this liquor can be removed from the pulp by a simple draining process. To remove the balance, however, great quantities of wash are required. Washing procedures vary from mill to mill, depending upon product requirements. However it is not unusual to require as much as 42 tons of wash water to displace the 1/2-ton of solids left in the pulp after draining. It is obvious that these washings become progressively more dilute. No data are available as to the actual efficiency of the collection system at Rhinelander.

"Inasmuch as the plant has been found capable of handling designed quantities of liquor solids, and in view of the fact that experience with liquor collection indicates it is a problem to be worked out by each mill, therefore it is our judgment that the project could best be served by concentrating on the yeast plant itself rather than on an evaluation of the collection system as it happens to exist. "In Europe we found that several plants were

built for the sole purpose of producing yeast for human food from spent sulfite liquor. Such plants were built in Finland, Sweden and Germany. One was built in Switzerland for the dual purpose of producing human food and improving a stream. As food supplies improved after the war, the market for yeast as human food collapsed.

"Attempts to find out treatment efficiencies directly from European yeast plants were unsuccessful. Their objective is not stream improvement.

"The plant at Koestheim, Germany (can be calculated to have) over-all treatment efficiency indicated to be 37.2%. The Kelheim plant, operated by the same company, had an overall treatment efficiency of 54%."

It must be borne in mind that from a national point of view, the sale of this fodder yeast—finding farmers who even want to buy it—is another and a serious problem.

HEARING FOR WASHINGTON MILLS Lebanon Ammonia Experiment Watched

Four Washington state sulfite mills have asked for, and have been granted a hearing, in appealing a mandatory order issued Feb. 2 by the Washington State Pollution Commission. This order requires that they "substantially complete" facilities for curtailing the flow of their waste liquor into bays and streams by Sept. 1, 1951.

These are the Soundview and Weyerhaeuser mills at Everett; Rayonier's mill on Grays Harbor, and the Crown Zellerbach mill at Camas.

From statements of executives of these mills it is evident that:

1. All four mills are sincerely anxious to comply with the order, but feel the deadline date is arbitrary and unfair (E. F. Eldridge, commission chairman, has himself conceded he is convinced of their sincerity).

2. They warn that haste in forcing the setting up of uneconomic disposal plants, costing many millions of dollars, might jeopardize mills financially and imperil employment and tax revenues. Contrary to optimistic newspaper articles, both operators and expert observers of Weyerhaeuser's magnesia base recovery plant at Longview agree that it has not yet proved economically successful and its installation in other locations (for instance, where salt water-borne wood is used) would give rise to new and even more baffling problems.

3. They want time to observe the results of a Crown Zellerbach-Soundview joint experiment conducted at the Lebanon, Ore., milk-of-lime process sulfite mill of Crown Z, where ammonia has already been successfully substituted for lime and where an additional \$200,000 has been appropriated for the next steps in the experiment—evaporation and burning of residual effluent. Even the Weyerhaeuser officials, who pioneered the MgO process at Longview, concede they might adopt the ammonia process at Everett, if it proves more practical, and they assert a premature second MgO installation might tend to delay, rather than accelerate, an economic solution.

The above three points are a fair summary of the mill's point of view, although several other measures were suggested individually.

For instance, Crown Z offered to build a \$225,000 pipeline at Camas to carry its effluent beyond Camas Slough to bottom of the main channel of the Columbia River. And Rayonier stated that during 1950 it will further increase the percentage of sulfite liquor now being withheld from the Chehalis River and Grays Harbor during low water (it now impounds 80% on Rennie Island during critical periods).

State Seeks to Define Problem

Unmentioned in the daily press (a Hearst paper headline "3 Pulp Mills to Defy State" indicates the intelligence of some of the reports), was the significant fact that the State Fisheries Department is preparing Bowman Bay, which is near the Everett mills for tests of the effect of different concentrations of sulfite mill effluent on the fish life. On the face of it, this reveals the state itself is unsatisfied with the extent and potency of the problem which is to be solved; and this would seem to be an important preliminary to get factual information about it, before millions are put into proposed remedies that may or may not, adequately solve it.

It is hoped that as a result of the hearing, the commission will give the mills a reasonable time and opportunity to study solutions which are only now in pioneering or experimental stages.

HOWARD W. MORGAN, manager of the Pulp Division, Weyerhaeuser Timber Co., suggested a hearing to ascertain facts and correct erroneous information on the much-discussed MgO plant at Longview.

He told PULP & PAPER he felt more time should be allowed for completion of a plant at Everett. He said "it took us two years to build the Longview plant and we still have some improvements to make at Longview be-

fore we could make a decision at Everett."

In his reply to the commission, he said in part:

"Difficulties have been encountered in the operation of this (Longview) plant, and both expensive and time-consuming changes have been required. The difficulties encountered could not have been foreseen from pilot plant

(Continued on page 96)

THE CPPA AND APPA

1950 Messages from Industry Leaders

Parker and Fowler Warn Against Fears

The Canadian industry leaders were still buoyant about the general situation for the industry, although concerned about some special matters involving Canadian U. S. government activities, when they gathered in a record-breaking attendance at the Canadian Pulp & Paper Association meeting in Montreal's Mount Royal Hotel, Jan. 25-26-27.

Just 32 days later, the biggest meeting of the year of the American Paper and Pulp Association was winding up on the Starlight Roof of the Waldorf-Astoria Hotel in New York and telling publicly some of the problems and worries nearest to its heart. This APPA meeting also was generally optimistic, or at least, confident of the future. (In appraising the two meetings, it might be recalled that at last year's "Paper Week" in New York, the Canadians chided the U. S. mill executives for their pessimism and the Canadian proved correct).

The Canadian industry re-elected its entire group of top officers, headed by Harold S. Foley, president of Powell River Co., as chairman; and L. J. Belnap, chairman of Consolidated Paper Corp., and L. S. deCarteret, president of CIP, as vice chairmen.

R. M. Fowler, continuing in his capacity as the president and administrator of the association activities, made his fifth annual report in which he struck out at the U. S. Congress's so-called newsprint "monopoly" projected investigation and the "absurdity of reports of artificial shortages of supply of newsprint in the U. S." and called "the great uncertainty" over general industry conditions for the next few years "a psychological one."

"Will the basic soundness of the economy be recognized and accepted?" he asked, and he urged his listeners to "look at the basic facts of this continent's economic health and vigor, and not merely our own fever charts." But despite his words, there was some noticeable concern over the current declining exports (18½% less than 1948).

APPA's Meeting in New York

We will go back to the Canadian meeting, attended also by **PULP & PAPER**, but at the more recent meeting of APPA in New York there were developments of more recent and also significant character. The APPA voted in a new leader, George R. Olmsted, Jr., president of S. D. Warren Co., Boston, for whom he has worked almost since he graduated from Williams College in 1924. He became one of the youngest presidents of the APPA, taking over the reins from Cola Parker, president of Kimberly-Clark Corp. Pictures of Mr. Foley and Mr. Olmsted, the 1950



COLA G. PARKER (left), President of Kimberly-Clark Corp., who completed two eventful years as President of APPA this past month; and C. D. JACKSON (right), Publisher of *Fortune* magazine, principal speaker at annual APPA dinner.



DR. LINCOLN R. THIESMEYER, an American who worked in atomic energy research, is new President of Canadian Pulp & Paper Research Corp., which directs the Pulp and Paper Research Institute in Montreal jointly sponsored by McGill University, the CPPA and the Canadian Govt. OTTO MAAS continues as Gen. Director. Dr. Thiesmeyer is from Harvard, and he sharply reverses a trend Canadian leaders deplored a year ago—loss of some of their ace technical men to U. S. mills.



ELECTED VICE CHAIRMEN OF CPPA: L. S. deCARTERET (left) President of Canadian International, and L. J. BELNAP, Chairman of Consolidated Paper.

industry leaders are on our cover this month, and on a preceding page are personal sketches of both.

E. A. (Ted) Tinker, executive manager of APPA and his committees from industry and his associates, chose a brilliant group of speakers in or close to pulp and paper for the New York meeting. At the annual APPA luncheon, a man

related to the industry by profession, was the honor speaker, C. D. Jackson, one-time general manager of Life, now vice-president of Time, Inc., as well as publisher of *Fortune*. Holcombe Parkes, executive vice president of Apex Films of Los Angeles, was featured speaker for the Salesmen's Association for the Paper Industry.

As always, during the week at the Waldorf, there were a number of specialized meetings whose significance **PULP & PAPER** will report in its next issue. But as we go to press it was plain that among the most significant were those on stream improvement with the National Council drawing in more panel speakers than ever before.

The Starlight Roof session high-lighted the whole convention and indicated a new trend in APPA toward fuller general meetings open to both membership and interested laymen. Vertrees Young, executive vice president of Gaylord Container and a forester himself, discussed "Forestry and the Paper Industry;" William Beckett, executive vice president of Beckett Paper Co., related his opinions and the stand of the Association of Pulp Consumers of which he is president, on the effects of devaluation and tariffs. Malcolm White, Milwaukee lawyer, apprised the huge audience of legislation affecting the industry; and John Burke, president of the A.F.L. Pulp, Sulfite and Paper Mill Workers, brought word of labor's interest.

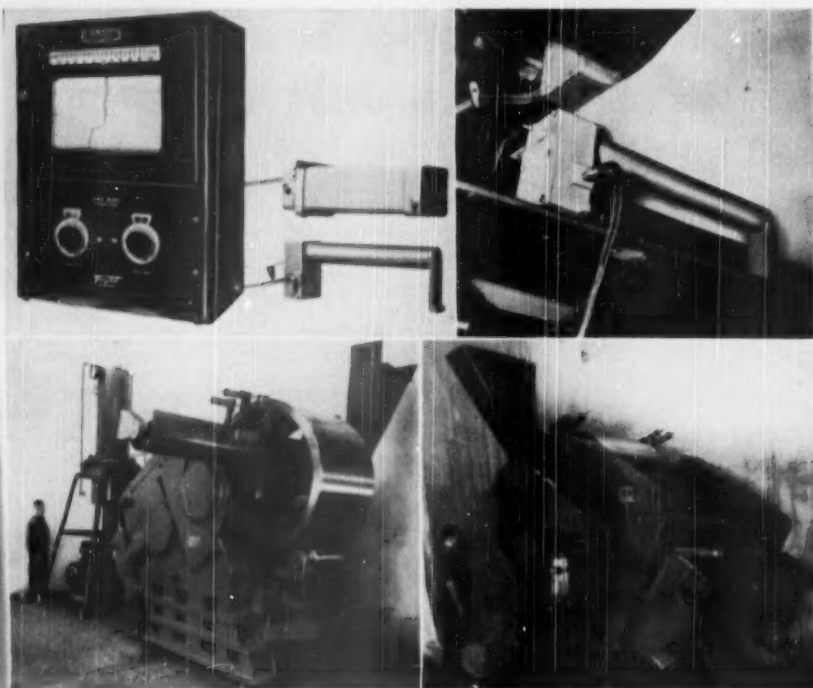
Mr. Beckett indicated the concern of non-integrated mills on lowering tariffs and the recent devaluation in the sterling areas. To the surprise of some, he discussed the subject not merely from the viewpoint of imported papers, but from what he felt might be the eventual effect on domestic supply of pulp.

Other Highlights at Montreal

Perhaps inadvertently, a U. S. Congressman chose the luncheon day of the Canadian convention in Montreal to announce in Washington that he believed Canadian newsprint mills should be more subject to U. S. anti-trust laws (he did not say how) because he was "certain" that there was a rigged scarcity to hold up prices. Naturally he collided with Mr. Fowler, who pointed out in his address that the production increases, through improvements to mills, equalled that of five new mills, which did not look like a rigged scarcity. Because Canada readily lost much of the effect of devaluation, Mr. Fowler stated that newsprint had been fair. He also repeated that much of the profit went into mill and forest improvements, despite the beginning of decline in the U. S. market and a mere 9% export of newsprint abroad. This very major shift in the industry makes the economic health of the U. S. more and more important to Canada because pulp and paper, Canada's largest in-

(Continued on page 82)

What Was — — NEW AT TECHNICAL MEETINGS?



THE QUESTION ABOVE these pictures is vitally important to every busy mill executive who attends or reads about the big winter Technical Conventions—in Montreal and New York. On next pages we have attempted to cull from numerous papers given at these meetings (many of which may never be published, or not for months to come) for the answer.

ABOVE PHOTOGRAPHS illustrate two of them: Top views are of BETA GAUGE to measure paper weights and lower views are of the STACOMIZER bark press.

TOP LEFT: Tracerlab Beta Gauge, showing recorder console, source chamber (lower right), and radiation detector or ionization chamber (upper right). This is first major industrial use achieved from Oak Ridge-produced radioisotopes. Subject was one of high points of Tappi's program in New York, but the Paper Makers and Associates of Southern California, in Los Angeles, had a "preview" six weeks earlier—reported in the next column.

TOP RIGHT: This shows how Beta Gauge source and detector units were mounted on machine at Continental Paper Co., Ridgefield Park, N. J., to measure basic weight of boxboard. Tracerlab, Inc., of Boston, makes it.

THE STACOMIZER, made by Farrel-Birmingham Co., Ansonia, Conn., is continuous roller press, to prepare bark for economic burning, an important development in the South and on the Pacific Coast as well as in Canada. PULP & PAPER in Jan. (page 38) described Stacomizer in use at Anglo-Canadian mill.

LOWER LEFT: Discharge side of the press and the hydraulic multiplier with its air compressor. Entering the ring from the right is the feed chute and leaving to the left is the screw conveyor. The air loaded support roll for the ring at the lower right was found to be unnecessary in the bark application with some possibility that it might actually be undesirable when the press was in operation because it restricted the vertical motion of the ring.

LOWER RIGHT: Drive side of the press with square end of inner roll ready for connection to square filler shaft between bull gear and press roll. Near top of press can be seen geared motor drive of screw conveyor. Just below lower roll shaft extension is high pressure lubricator which supplies press roll bearings.

Awards At CPPA; Curlator Paper Were "Sleepers" But PULP & PAPER Experts Picked Them As Outstanding a Year Ago

The Technical Section of CPPA at Montreal broke precedent when it awarded four I. H. Weldon Medals, instead of the usual one, for "the best paper read at the previous year's meeting."

On the subject of curled pulp, four authors had teamed up: H. S. Hill, J. S. Edwards, L. R. Beath and F. P. Silver. Respectively they are director of research, manager of newsprint division, and assistant research division, of Price Brothers; and general superintendent of Price Brothers' Riverbend mill.

This paper was at first a "sleeper," for although considerable interest was shown at Montreal and at the second reading in New York during 1949 "Paper Week" there were many skeptics. In fact, the study of curled pulp made possible by a machine developed by Curlator, Inc., of Rochester, did not appear in the U. S. association's official organ until a year after its reading. PULP & PAPER's reports a year ago, written for this magazine by expert observers, prominently featured the Curlator papers as the outstanding event at both Montreal and New York.

Other awards at the CPPA meeting included a service award (to industry and section) to W. H. Birchard, chief chemist of Fraser Companies; two shields for safety to the Jonquiere division of Price Brothers, and the Crabtree Mills division of Howard Smith Paper Mills, Ltd.

New York, Kazoo, Los Angeles Talks

The use of radioisotopes in the paper industry — first important development of the Atomic Age to benefit this industry in particular—was one of the subjects of prime interest at Paper Week in New York and one of Technical convention's main addresses in the Commadore was on the subject.

But there has been much early work in this respect done in Canadian mills.

Three previews of the talk were given 6 weeks before Paper Week. Tracerlab, Inc. (Boston) men talked before Supts.-Tappi in Kalamazoo; a local section in New York City, and the independent technical group, Paper Makers and Associates of Southern California, in Los Angeles. The Los Angeles report, typical of all, follows:

A brief illustrated talk on Beta Gauges was given by J. Kohl, chemical engineer, Western Division of Tracerlab, Inc., in Berkeley, Calif. Trial installations of Beta Gauges have been made in mills in the Los Angeles area.

The Beta Gauges comprise a radio-active source and an ionization chamber receiver. Material to be measured continuously travels between the source and receiver. The source comprises a small quantity of a beta ray (electron) emitting radioisotope which is obtained from the Atomic Energy Commission. The receiver measures the number of arriving beta rays. As the weight of the material, for example paper, increases, it stops more of the beta rays resulting in a change in receiver reading. The response of the receiver can be observed on an indicating meter or can be recorded on a potentiometer recorder. If desired, the receiver can operate a standard potentiometer controller. The material measured is neither touched nor in anyway activated by the gauge.

The Beta Gauges can be used to "weigh" combined materials such as waxed papers, roofing felts, box boards, etc. The gauge reading represents total weight of the material. It can be calibrated directly in lbs. per square for roofing, per 480 sq. ft. for felt, or per 1,000 sq. ft. for paper board. Amounts of asphalt, wax, etc., added to paper can be determined, and use of the gauge permits accurate and continuous control of weight of finished product. The instrument in no way contacts the material. For tissue or thin materials, or where access to only one side of the sheet is possible, a modification of the instrument, called backscattering, can be used.

Used in Canadian Mill

Rolland Paper Co. at its Mont Rolland mill in Quebec has been using radioactive tracers, a by-product of Canada's Chalk River (Ont.) atomic energy plant. It is believed the first time that radioactive isotopes have been used for industrial purposes in Canada. Radioactive isotopes of uranium ended the company's waste from static electricity that used to crumble the paper on press runs and saves considerable money.

Permanent Beta Gauge Installed in Paper Mill

Continental Paper Co., Ridgefield Park, N. J., which made news some time ago with the first of a new kind of profit-sharing plan for employees, is believed to be the first now with a permanent installation of a beta gauge in a paper mill.

According to E. A. Crawford, engineering supervisor, it is being used to measure the basic weight of paper boxboard.

MONTREAL—NEW YORK

An Appraisal of Both Technical Meetings Canadians Hear Sulfite Liquor Progress

A snow-free balmy Montreal welcomed nearly a thousand members of the technical section of CPPA to a three-day convention at the Mount Royal. Proof that this lively group is on the move was the statement of John Buss, retiring chairman of the section, and assistant production manager for Provincial Paper Ltd., Toronto, who revealed that membership had risen from 1047 to 1142 at the end of 1949. And this does not include seven branches with 1720 members scattered across Canada, plus formation of the new St. Francis Valley branch to embrace the Sherbrooke-Windsor Mills region. In his statement on "the state of the section," Mr. Buss offered great credit to Douglas Jones, secretary-engineer, and his staff.

As is frequently the case, the Canadians got prior hearing on several important papers which were being featured later in the U. S. technical association meeting under way at the Commodore Hotel in New York in late February. Among these were the Vortrap paper by H. E. Ingalls, Nichols Engineering and Research Corp., and the Waco filter discussion by Robert Nivison, Improved Paper Machinery Corp. One of the featured speakers in Canada, talking of wheat straw papers in Europe, was Joseph E. Atchison, of the pulp and paper division of ECA; but at Paper Week in New York, he changed his subject to progress made on ECA since he discussed it at New York last year. And at New York James Coghill was making a progress report on the Curlator, a follow-up of the prize-winning paper on curled pulp introduced at Montreal a year ago. Of particular interest was the great atten-

tion to sulfite mill problems in both Canadian and U. S. meetings.

Papers on Liquor Recovery

One of the well-attended meetings at Montreal featured the paper on magnesia base sulfite pulping as it is being pioneered at Weyerhaeuser's Longview, Wash., mill. R. E. Baker, mill manager, and Frank Hutton, of Babcock and Wilcox Co., prepared paper, which was substantially the report delivered in the far west last fall.

In view of tremendously sharpened interest in the problems of handling sulfite liquor—developments in Washington and Wisconsin state being reported elsewhere in this issue—and the plight of the KVP mill at Espanola, Ont., where the mill was threatened with a shutdown through an injunction based on a legal technicality—the Canadians had a very clear edge over the listeners in New York 30 days later as far as this major problem was concerned. The Canadians not only had Mr. Hutton's MgO report; but also that of Curt Rosenblad, formerly of Sweden and now becoming a U. S. citizen, who gave an address on the "Evaporation of Sulfite Waste Liquor."

But this wasn't all for the Montreal audience. They heard three other timely papers on the related subjects of waste liquor, including work done at Bowaters' big Newfoundland mill. These were by H. Elgee, D. Craig, and Dr. J. K. Russell (Therman Compression Evaporation); J. N. Franklin and H. O. Goddard (Medium Stream Pressure Concentration); and Dr. F. Bender (Removal of Calcium from Sulfite Waste). These are discussed

later in this article. Special attention focussed on Rosenblad's discussion (whose licensee is General American Process Equipment Division of General American Transportation Corp.) because his evaporator is used in the Interlake pilot plant at Appleton, Wis., which is a center of interest of the Wisconsin stream studies.

In his paper he described the general conditions for evaporation, and stated that while the multiple vacuum evaporator is the most common type in use for recovery, the most economical types are counter pressure and compressor evaporators. Both types, he said, were advantageous if evaporation is at high temperature and pressure. Mr. Rosenblad was conservative in reporting the Swedish situation. It is understood by **PULP & PAPER** that he is waiting for new comment from Swedish mills, and it is known that the Rosenblad type is now being installed in a north Sweden mill with 200 tons daily capacity, far above the average of northern midwest sulfite mills.

Neutral Sulfite Process

Great interest attached to the paper by J. C. Clare Gain, of the Sturgeon Falls mill of Abitibi who discussed, "Corrugating Board by the Neutral Sulfite Process."

A feature article next month by **PULP & PAPER'S** Canadian editor, and obtained at the mill, will describe the Sturgeon Falls neutral sulfiting equipment.

At Sturgeon Falls the cooking process is the first installation of its kind in Canada. It does not remove the hemi-celluloses from the wood chips. And these constituents of the wood impart greater strength in the resulting pulp which is of value in the manufacture of corrugating board, especially for shipping containers. Since the hemi-cellulose content of hardwoods or deciduous trees is higher than in the coniferous species, this pulping method permits the use of poplar, birch, and other hardwoods. In fact, Abitibi uses up to 21 different types of trees in this process.

Our article on Sturgeon Falls next issue will describe the process in detail, giving particulars on the wood used, the cooking of the wood chips, refining, and the paper machine. The bark is not removed from the logs as the bark and sawdust are used. The board is particularly tested for its rigidity on which depends the load that the finished container will hold.

Fiber Recovery

W. P. Nesbitt, mechanical superintendent, Howard Smith Paper Mills, Ltd., pointed to the Waco filter as a comparative newcomer to a 30-year program of improvements in technique and equipment for recovery of fiber and filler in excess white water. The Waco equipment was

MgO REPORT DRAWS MANY At Montreal Meeting

An extremely well-attended meeting in Montreal featured the paper on "Magnesia Base Sulfite Pulping," which was prepared by Ray E. Baker, mill manager at Longview, Wash., for Weyerhaeuser Timber Co., where the process is being pioneered, and by Frank E. Hutton of Babcock & Wilcox Co. Weyerhaeuser, B & W and the Howard Smith Paper Mills of Canada have jointly developed the process. Mr. Hutton, who is in charge of B & W's pulp and paper division, delivered the paper which was substantially the same report that was first given at the Portland, Ore., convention last fall by Mr. Baker.

One of the most significant and widely interesting developments in the industry today, the published accounts of the process and recovery results are to be found in the October 1949 issue of **PULP & PAPER** in articles on page 29 and on page 41.

At Montreal, the authors presented the interesting data which was given at Portland (74% recovery of MgO and 64% recovery of sulfur were reported in the account in **PULP & PAPER**. For heat recovery: 4,350 BTU's per lb. of liquid solids fired; 5,770 BTU's per lb. of liquid solids expended into 'useful work'). Those figures are still approximately the month-by-month average at Longview and still substantially below the figures desired for economic operation and anticipated in the near future.

Certain mechanical alterations in the MgO plant at Longview in the past few months have been partly responsible for delays in achieving a higher recovery efficiency.

described at the New York meeting in February by Robert Nivison of Improved Paper Machinery which manufactures and sells the Waco filter. It was developed in Sweden in the early 40's and finds wide acceptance in European mills as a white water saveall. According to the Howard Smith, mechanical superintendent, the Waco equipment filters the water through a continuous cellulose mat on which are deposited the fibers and the materials in the water. Mat and materials collected on it can be re-used in papermaking. Small floor space requirements, low power needs, and absence of need for chemicals are cited as advantages. Mr. Nesbitt's data on use of the Waco filter on a paper machine running book and writing papers, in an experimental run filtering St. Lawrence River water, indicated success. Mr. Nesbitt told his CPPA associates that with slight changes the equipment could be used as a high capacity fresh water filter.

The Stacomizer Is Presented

R. J. Chambers, assistant chief engineer for Anglo-Canadian; and K. C. Logan, director of development, Northeastern Paper Products, gave what was to many members first data on a new continuous roller press known as the "Stacomizer" named for its Long Island developer. Novel in design, this press features a free floating ring running between two rolls, the material being pressed passing between the inner roll and the inner surface of the ring. The authors made trial runs at various pressures and bark was transferred to moistures between 50 and 55%, the press breaking the bark into pieces suitable for conveying or burning. Seventy tons of oven dry material could be delivered every 24 hours. Rates as high as 120 tons have been obtained but not on very slippery bark which may drop the feed rate to 40 or 50 tons.

Interesting tests have been made by Messrs. Chambers, Logan, and Stacom and associates on pulping which included rapid sulfite process, semi-chemical neutral sulfite and others, which indicated optimistic possibilities on preparation of chips for several pulp processes.

Other possible uses: Defibering of knots in screen rejects; removal of processing liquors from chips and pulp; of juices and extracts from leaves, needles, bark, and wood; treatment of bark for further processes into briquettes, wood flour, and other by-products. It is interesting, the authors noted, that the 40-inch Stacom press used for the tests would treat up to 200 tons of commercial chips soaked in water 24 hours and these handled more readily than bark. It looked to the authors as if there might be "wide fields of application for this equipment in the pulp and paper industry."

The Vortrap

Doing a repeat performance at the Commodore during "Paper Week" was H. E. Ingalls, sales engineer for Nichols Engineering and Research Corp., New York City. He recalled that the Nichols-Free-man Vortrap, into which pulp is pumped

GOLD MEDAL AWARDED TO GEO. "OHIO" MEAD



A highlight of Paper Week in New York in late February was the annual award of the Tappi Gold Medal—for 1956 to George Houck Mead (left), who is now the honorary board chairman of Mead Corp. after 50 years in that company.

Since 1933, Mr. Mead has been active in Washington in government affairs as an industry representative—the most prominent one from the paper industry—and his most recent appointment was to the ECA advisory board.

This G. H. Mead is not to be confused with the George Wilson Mead who heads one of Wisconsin's biggest paper industries—Consolidated Water Power & Paper—although the two gentlemen once got their heads together and decided they were probably remotely related "way back when." Sometimes they are called George "Ohio" Mead and George "Wisconsin" Mead to distinguish one from the other.

The grandfather of G. H. was in the paper business in 1946. The grandson returned to his birthplace, Dayton, O., in 1877, to become a tour worker at the Mead mill, 11 hours on the day shift or 13 on the night shift. The 20-year old saw his need for chemistry and mechanical engineering, so left the mill for more schooling and added to his Hobart degree a B. S. from M.I.T. Then, to study under A. D. Little, a leading industry chemist of the time, he joined Cellulose Products Co. of Boston, where he found Mr. Little working on the first rayon in the U. S. Later, Mr. Mead established a laboratory at Chillicothe, then built and became general manager of an artificial silk mill until 1905 when it sold to British interests.

Eventually he undertook the reorganization of Mead mills at Chillicothe and Dayton and became president in 1912. He attained several mill interests in Canada and was president of the Spanish River Co., in Ontario. This firm and four others which had Mead's interest merged with Abitibi in 1928. In 1930 he organized the present Mead Corp. whose interests are in both the South and Midwest.

for removal of sand, dirt, and other foreign matter, was developed prior to the war by Consolidated Paper Corp. under the direction of Horace Freeman, technical director of Three Rivers. Baled waste paper for the making of paperboard offered a serious problem because it often contained very serious "foreign matter" even including bottle caps and glass. This led to the development of a larger Vortrap for paperboard plants, said to remove up to 1,000 pounds of heavy foreign matter per day. Showing a typically well integrated installation diagram, Mr. Ingalls pointed out that use of the Vortrap reduces maintenance and operation costs as well as freeing high-grade paperboard from dirt and abrasives. This is vital for high-finish board which often goes through black-ink or multi-colored printing presses.

Evaporation by Thermal Compression

Following the Rosenblad discussion, as already mentioned, Messrs. Elgee, Craig, and Russell of Northeastern were on the "Waste" program, and they focused on a pilot plant study of the evaporation of waste liquor from sulfite pulping by thermal compression. They assumed the premise that evaporation processes are often uneconomical and possibly complicated by scale formation in the equipment. The authors built a pilot plant to study evaporation by thermal compression. Their conclusions: evaporation by this process is feasible and practical, and the low energy requirements would make possible recovery of materials now impractical due to high recovery costs. There was a fly in the ointment that looked familiar—scaling was a problem and a completely satisfactory treatment of scale "is yet to be found," they said.

Liquor Solids Recovery at Bowaters

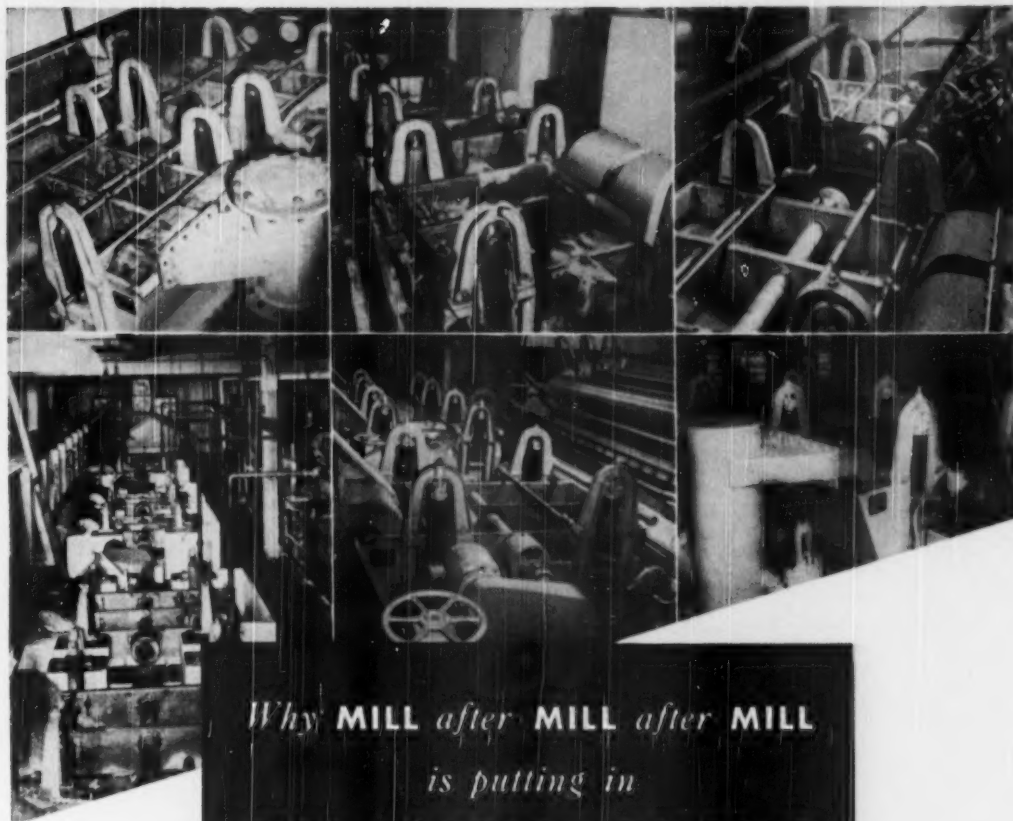
Recovery of solids from sulfite pulping was reflected in a paper by J. N. Franklin, technical superintendent, Bowater's Newfoundland mill; and H. O. Goddard, research engineer, Foster Wheeler Ltd. of Ontario. They drew their study down to the medium pressure steam concentration of waste sulfite liquor. Gerald Penney is mill manager and Lyle Lang is sulfite superintendent at Bowaters.

Admitting that the idea of obtaining fuel from waste liquor is not new, the authors attacked the problem of costs—the bitter fact that cost of the fuel extraction has to be in line with coal or oil. This, they said, meant full use of the waste liquor, possibly through a complete concentration, or as near 100% as possible.

This paper described a pilot plant built by Foster Wheeler Ltd. at the Bowater's mill at Corner Brook to study concentration of solids by medium steam pressure. Here again progress could be reported, and scale was the villain.

Consequently they devoted much attention to various methods of removing scale and decided as follows: Water—unsatisfactory at two hours per day, probably ditto with longer washing periods; thermal descaling—unsatisfactory; sodium hydroxide—experimental accidents caused unsatisfactory results, but proper control of caustic concentration and temperature indicated possibilities; tri-sodium phosphate—no effect; sodium hexametaphosphate—no effect; nitric acid—indications that 96 to 97% of scale could be removed with nitric acid, but the authors were unwilling to call it an ideal washing solution; ammonium nitrate—no effect; mechanical means—wire brushing not practical in full

(Continued on page 87)



Why **MILL after MILL after MILL**
is putting in
BIRD JONSSON SCREENS

— **as knotters**, Jonsson Screens are delivering 80 to 100 tons of clean sulphite a day, handling stock up to 1½% consistency; on groundwood and kraft they're delivering 150 tons or more and handling stock up to 2½%.

— **as fine screens**, using slotted plates, Jonsson Screens are doing a whale of a job and providing great capacity at lower cost.

— **ahead of brown stock washers**, Jonsson Screens are taking out the knots, shives and chips, delivering the stock without foaming problems and assuring increased washing efficiency, better vacuum maintenance and maximum recovery of black liquor.

— **on waste paper stocks**, Jonsson Screens remove wet strength paper, cellophane, string, paper clips, rubber bands, etc., with negligible loss in the tailings. Capacity is large.

For information as to what Jonsson Screens can do for you, write

BIRD MACHINE COMPANY
SOUTH WALPOLE • MASSACHUSETTS

Development Engineering in the — — PULP AND PAPER INDUSTRY

By P. R. Sandwell
Engineering Consultant

It is my intention to place particular emphasis upon the methods employed by engineers in the design of plant used by the pulp and paper industry. In this sense, the talk will be philosophical. By "development" we mean a gradual advance through a series of progressive changes. By "engineering" we mean the act of accomplishing for \$1 what anyone can do for \$2. This leads, for want of anything better, to a definition for "development engineering" of "economic advance through progressive change." With these definitions in mind, I wish to talk about the economic and technical backgrounds of development and the theoretical and experimental methods of accomplishing it.

Economic Background of Development

The only reasons for the development of industry are economic. Some are negative: to avoid economic loss. Others are positive: To allow economic gain. The economic reasons are as basic to intelligent development as the technical methods by which development is accomplished, and must be understood by all who take part in it. It happens that in the pulp and paper industry capital investment is high in ratio to the value of the product. Therefore, each progressive change in our gradual advance is usually too permanent to allow modification after it has been accomplished. By way of illustration, I understand that a light manufacturing plant may have an annual product value of five times its capital cost. In the pulp and paper industry, the annual value of product may be as little as one half the capital cost. This means that the replacement of machine tools in the light manufacturing industry is of little relative concern, whereas the replacement of process plant in the pulp and paper industry is very difficult to justify.

In recent years the situation has been aggravated by high taxation. This is because the "capital dollar" has become much more precious than the "expense dollar". The reason for this is that new capital must be accumulated out of profits from which taxes have already been deducted, whereas the cost of the expense dollar is shared with the tax gatherer. There is almost reason for adopting the pre-war German practice of having different kinds of currency for different uses.

In this respect, we see a discouraging aspect of taxation in its present form, which is as of great importance as the more widely expressed objection that by limiting profits it reduces initiative. The

A DEVELOPMENT ENGINEER'S "CREED"



P. R. "Dick" Sandwell (left), former chief engineer for Powell River Co., and now an industry consultant, with offices in Vancouver, Wash., was the author and the speaker.

In all the industry meetings of this past month or so—in Montreal, New York and elsewhere—there was no "paper" more significant for both engineers and management—particularly in regard to relations between them that would make for intelligent mill development work. It could very well be entitled a "Creed" or "Philosophy" for a development engineer.

Many who attended the Everett session asked—or even urged—**PULP & PAPER** to publish Mr. Sandwell's paper. We are pleased to present its first publication here.

Mr. Sandwell is the son of the famed late Percy Sandwell, who constructed several West Coast and Australian mills. Dick was with his father in Australia, and was also formerly with Dominion Engineering and development engineer for Ontario Paper Co., before he went to Powell River. He recently made a tour of Sweden and other European nations, observing engineering advances.

need to conserve "capital dollars" pinpoints the need to reduce the risk of overspending them, and has a profound influence on the methods employed in contemporary development engineering. Rapid development demands that risks be taken. If they must be avoided, development must either be slow or carefully planned.

Because the high ratio of capital investment to the annual value of product in this industry makes replacement difficult to justify, most advances tend to be made when new plants are constructed.

Nevertheless, there is a national inclination by all concerned with a new plant to avoid, during construction, the risks that go with new development. The owner is reluctant to develop because of too great a demand on funds due to delays and errors of judgment can cause the failure of a new project. The operator is reluctant because too great a departure from conventional practice reduces the value of his principle and sometimes sole asset his experience. The engineer is reluctant because even partial failure can rob him of his only asset his reputation. Under these circumstances, it is difficult to imagine how there can be any new development at all. This is particularly true where creative design is involved because not only does the engineer gamble with his reputation, but his rewards are slight even when he wins.

A few years ago, there was published an interesting book on modern naval warfare. In ending the chapter upon the design of the ammunition handling equipment, in which the author pointed out the compromises required of the designer, he made the statement: "In every naval engagement between two ships there is a winner and a loser. The winner always wins because of the skill of the officers and the bravery of the crew. The loser always loses because of the mistakes of the designer."

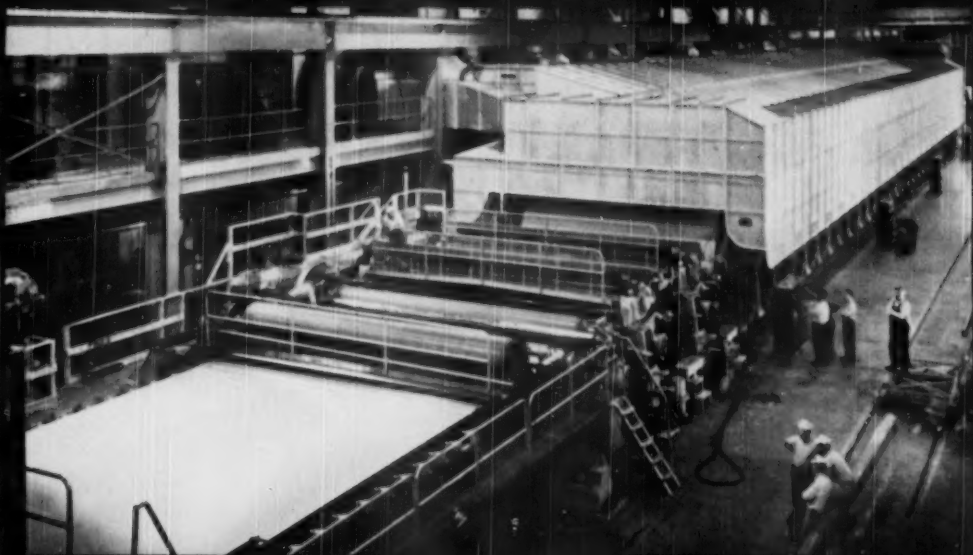
Apparently the fact that new developments do take place during construction can only be due to our perversity and to the fact that our fear of accomplishing nothing is greater than our fear of being wrong. This would be a dismal conclusion if it were entirely true. Fortunately it is not.

We have the means of making progress with confidence through the scientific tools at our disposal. Such tools are: (1) The wealth of recorded data which represents the cumulative experience of our predecessors and of our colleagues; (2) methods of obtaining reliable data upon which to base design; (3) reliable means of calculation and prediction; (4) scientific processes of thought.

Technical Background of Development

Not so long ago, the selection of equipment and its arrangement within a plant were based upon the joint judgment of the owners, the operators and the engineers. In this respect, the art of paper mill design lay somewhere between conventional methods, of designing a small sawmill on the one hand, and the far more intricate methods required in the design of oil refineries on the other. There is today a tendency for greater simplicity

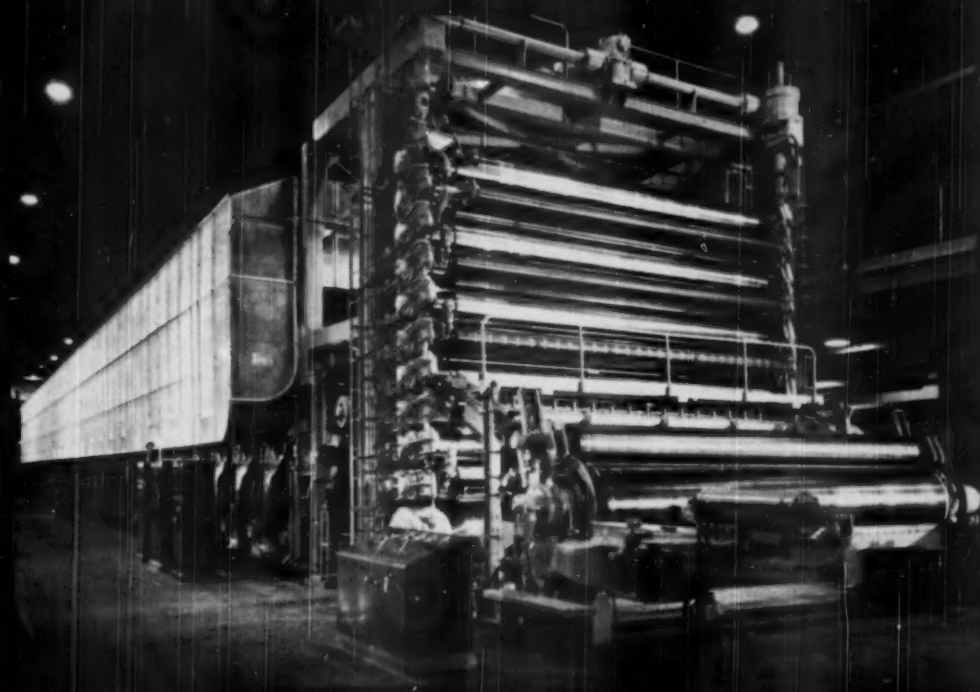
(Continued on page 65)



New...at Coosa River

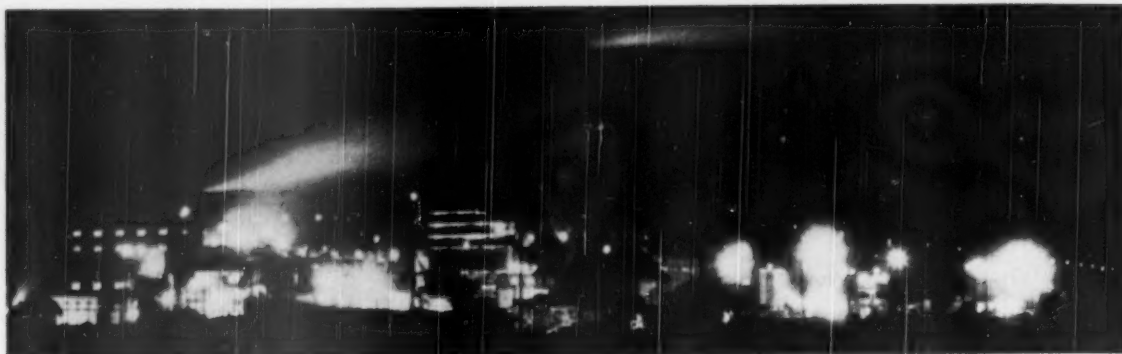
Congratulations to Coosa River Newsprint Co. and to Kimberly-Clark Corp. for the expertly planned and executed operation at Childersburg, Ala. The recently completed No. 1 machine is shown here. The second 226" Beloit Newsprint Machine is nearing completion in this all-new plant.

BELOIT IRON WORKS, BELOIT, WISCONSIN



COOSA RIVER MILL

A COMPLETE DESCRIPTION



HERE IS A SPLENDID EXCLUSIVE NIGHT PHOTOGRAPH of the new Coosa River Newsprint Co., on 24-hr. operation at Coosa Pines, Ala. This picture was just recently taken by PULP & PAPER'S ASSOCIATE EDITOR IN THE SOUTH on a visit to the mill.

PULP & PAPER'S Southern Associate Editor has made several personal visits to Coosa Pines, Ala., and vicinity in the past two years. He has seen the new modern and great Southern kraft pulp and newsprint industry at that location virtually grow and take shape before his eyes. Even before that, he made frequent calls on the Birmingham promoters and others and no one outside of financiers and builders have been in closer touch with this important Southern development.

Here is his thoroughgoing and complete description, written right on the scene, just as the mill got into full production.

Production of newsprint at the Coosa River Newsprint Co.'s mill at the site of the Alabama Ordnance Works at Coosa Pines, Ala., began in January several weeks after first pulp was made, marking the solid achievement of a union between northern and southern know-how and enterprise. The latter was furnished by publishers who wanted their own paper supply plus Alabama industrialists who refused to let a big arsenal lie idle. The know-how comes from the paper-making ability of Kimberly-Clark Corp., Neenah, Wis.

For Kimberly-Clark there will be a rated 146 tons per day of dried fully bleached kraft pulp for their facial tissue and creped wadding plant at Memphis, Tenn., and other mills; for the publishers, there will be 74 tons of semi-bleached kraft pulp blended with 294 tons of groundwood and run through two paper machines to yield 350 tons daily of newsprint. Kimberly-Clark manages the mill.

These products come from a plant, the

main building of which is 1,114 feet long by 230 feet maximum width. It stands on 710 acres of excellent, well drained land.

The paper mill's cost was estimated at \$32,000,000; its payroll, 750 persons plus 1500 full and part time woods and transportation workers.

This is the first completely new mill built for newsprint in the U. S. in the past decade and the most important new source in the U. S. in that period. There have been some comparatively small ton-

nages come in as new supply in a number of existing large mills, also in the change-over to newsprint of smaller existing mills, as at West Tacoma and Longview, Wash., Park Falls and Ladysmith, Wis., etc., but nothing to compare with the Coosa River tonnage.

First pulp was made at Coosa Pines Nov. 11 and was sent to Memphis for Kleenex. First paper was over at Coosa Pines on Jan. 18.

General Construction

J. E. Sirrine & Co., Greenville, S.C., were consultant designing engineers; directed by, and in conjunction with, the Kimberly-Clark engineering department.

General contractors were F. H. McGraw Construction Co., Hartford, Conn., and Daniel Construction Co., Inc., of Birmingham, Ala., and Greenville, S.C. The McGraw firm had built the K-C Memphis plant. First piles were driven May 5, 1948 by Raymond Piling Co., New York.

K-C engineers believe they set a record for any similar undertaking by completing the actual construction in 20 months.

The mill lies north and south, the main road on the west. The digester room is north; the machine room south. Each end is approached by a railroad service track dividing into three spurs before entering. The westside spurs bring in pulpwood. On the south, two spurs flank the main building; one side to take out dried pulp, the other, newsprint. From the north, two spurs bring in chemicals and other supplies; take out turpentine and other items. There are other switch tracks in the yard.

Wood Preparation

The wood yard adjoins the highway. Here the two Fibre Making Processes

Coosa River Mill Facts

Capacity—Tons Per Day

Fully bleached kraft pulp	146
Semi-bleached kraft pulp for newsprint	74
Groundwood for newsprint	294
Newsprint	350

Raw Materials Used Per Day

Wood	707 cords
Limestone	19 tons
Burnt Lime	4 tons
Salt Cake	16 tons
SO ₂	2 tons
CL ₂	16 tons
Caustic	7 tons
Coal	360 tons

Utilities

Electric Power Generated	30,000 kw
Electric Power Used	30,000kw
Water Requirements	15,000 gpm-22 mgpd
600 Lbs. Steam Generated	45,000 lbs./hr.
130 Lbs. Steam Used in Mill	70,000 lbs/hr.
50 Lbs. Steam Used in Mill	175,000 lbs./hr.

Construction Facts

Mill Site	710 acres
Steel	8,076 tons
Concrete	45,000 cu. yds.
Forms	620,000 sq. ft.
Total Deliveries	3,500 R. R. carloads
Roofing	5,300 truck deliveries
Brick	250,000 sq. ft.
	1,050,000

STEBBINS

at

COOSA RIVER NEWSPRINT COMPANY

The Stebbins installation of tile tanks and tile linings is the largest of its kind ever made in the pulp and paper industry.

The installation includes the erection of all tile tanks, tile washer vats and stock chests in the mill, as well as the lining of all concrete tanks, bleach towers, wire and couch pits and other stock handling equipment which requires tile lining.

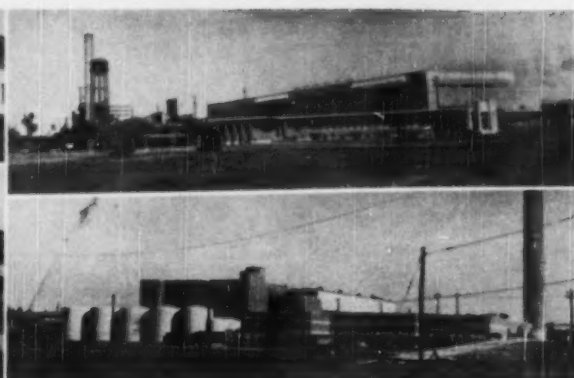


Stebbins Engineering and Manufacturing Company
WATERTOWN, NEW YORK
STEBBINS ENGINEERING CORP. - TEXTILE TOWER, SEATTLE, WASH.
CANADIAN STEBBINS ENG. & MFG. CO. LTD. - CASTLE BLDG., MONTREAL, CANADA





EXCLUSIVE PICTURES TAKEN BY PULP & PAPER'S SOUTHERN EDITOR on recent visit to Childersburg, Ala., and the new Coosa River mill near there:
Top left: Attractive modern cottages for mill employees of other industries at junction of old Arsenal road and Birmingham highway. Two 100-house projects are in this area.
Top right: General view of the mill. Office is in center foreground; stacked pulpwood in foreground at left; machine room behind the office.



Lower left: Childersburg business section and Alabama Highway No. 76 on a quiet Sunday morning. Southern Railway and Central of Georgia lines cross here.
Lower right: This 15th unit of Beaufort Mills, Inc., is a neighbor of the Coosa River pulp and paper mill on the Childersburg Arsenal grounds and is the first rayon plant in Alabama. It converts Southern pine-sulfite pulp from Rayonier's Fernandina, Fla., mill to 10 million lbs. per yr. of filament viscose rayon; employs 400.

barkers stand end-to-end, each with a 300-foot Link-Belt pulpwood conveyor, waist high, with aprons faced with stiffening iron to take the blows of the wood. Pulpwood is unloaded either to conveyor or reserve stock with cranes. These include an American Hoist Diesel-locomotive crane with Blaw-Knox grapples; an Orton Crane Co. mobile unit; and by a Manitowac Engineering unit. These other units use either a Blaw-Knox grapple or an Owens orange peel type grapple. Pulpwood is also received by truck. The storage yard has a capacity of 25,000 cords.

The F-M-P barking drums are 12 x 45 ft., each consisting of two 22½-ft. long shells with M bars on the inside, welded to ship channel rings. Each is driven by a 150-hp. motor and capacity for each is 25-30 cords per hour for pine.

On the discharge end of each barker there is a removable sectional barrier which controls the extent of barking by holding the volume of wood inside. These barriers may be set-up to as high as the barker's center. The barked logs pass into a single Link-Belt conveyor to the wood house.

The 37x70 ft. wood room houses two D. J. Murray chippers equipped with

OFFICERS AND OTHER EXECUTIVES OF COOSA RIVER NEWSPRINT CO.

Chairman of board: Donald Comer, Avondale Mills, Sylacauga, Ala.

President—Edward L. Norton, Birmingham financier and radio station owner.

Executive Vice President and General Manager—Arthur G. Wakeman, Coosa Pine, Ala., from Kimberly-Clark Corp.

Vice President in Charge of Sales—Ralph M. Watt, New York, from Kimberly-Clark Corp. Secretary—Walter Boudin, Birmingham attorney.

Treasurer—W. H. Clifford.

Assistant Treasurer and Assistant Secretary—F. A. Bachelder of Talladega, Ala., from Kimberly-Clark Corp.

DIRECTORS:

Messrs. Comer, Norton, Wakeman and Watt; Thomas W. Martin, Alabama Power Co.; Clarence B. Hanson, Birmingham News and Age-Herald; John F. Tims, Jr., New Orleans Times Picayune; Roy A. Roberts, Kansas City Star; Stuart W. Chambers, St. Louis Post-Dispatch; E. K. Gaylord, Oklahoma City (Okla.) Oklahoman and Times; and Cola G. Parker, Ernest Mahler and John Kimberly of Kimberly-Clark Corp.

MILL STAFF OFFICIALS:

Resident Mill Manager—William E. Hornbeck. Pulp Mill Supt.—J. D. Dailey. Paper Mill Supt.—A. J. Crittenden. Plant Engineer—C. C. Lande. Purchasing Agent—M. D. Behncke. Personnel Manager—George Koons. Woodlands Manager—John Raeburn. Wood Yard Supt.—John Thurner. Power Supt.—James Buck. Chief Forester—Harold E. Dickson.

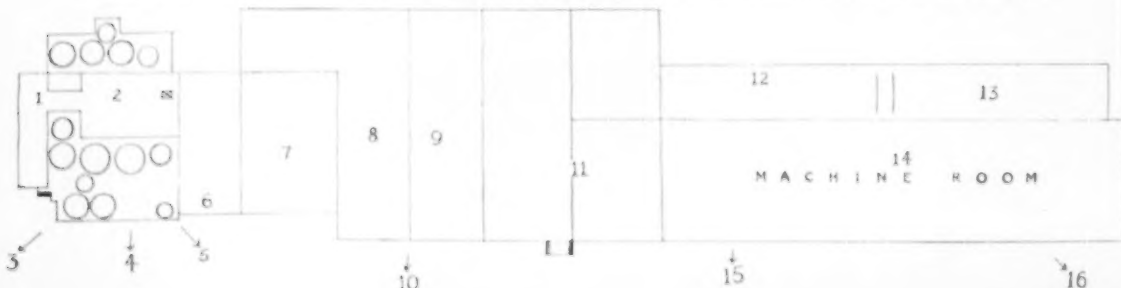
Heppenstall knives. The average rated consumption of wood is 707 cords per day. After passing through the vibrating screens the chips are carried by corrugated iron-covered Link-Belt conveyors to the bin. As the 36-inch Manhattan Rubber Co., belt passes them in, the load is weighed by a Merrick Weightometer scale. Another weightometer weighs bark and sawdust refuse.

The inverted "Y" 62x77 foot chip bin has a capacity of 20 digester cooks. It utilizes the Impco twin screen chip bin discharger, as described in an article by A. T. Hurter, of Montreal, in his article on improved chip bins in **PULP & PAPER**, Dec., 1949 issue. The transfer from storage to digester feed belt is effected by push-button control. A digester can be charged in 12 minutes.

The Pulp Mill

The digester operating floor is well lighted and ventilated, having windows on four sides. The six A. O. Smith digesters—four of which are alloy and two of carbon steel—are subjected to instrument control furnished by Foxboro—a panel to each digester. The charging valves are Powell. Blow tank exchanger and recovery system is from Fibre Making Processes. The digester arrangement

DIAGRAM OF PLANT LAYOUT OF COOSA RIVER (Numbers indicate areas as follows): 1—Digester building; 2—Washroom; 3—Slaker building and lime kiln; 4—Evaporator; 5—Recovery building; 6—Bleach plant; 7—Screen room; 8—Shops and stores; 9—Grinder room; 10—Barkers and woodroom; 11—Stock preparation; 12—Pulp drying room; 13—Roll storage room; 14—Machine room; 15—Parking areas; 16—Office buildings.



We are proud...

Newsprint From Dixie Pine Begins To Roll At Coosa Plant

COOSA PINES, Ala., Jan. 18—Newsprint from Southern pine began rolling out of the giant Coosa River plant here today in a historic-making step toward greater industrial development of the South.

Production began three months ahead of schedule. Ground for the plant was broken April 17, 1948. It had been expected to begin turning out paper by the Spring of 1950. Thus, start-up dates were surpassed.

The huge \$32,000,000 Coosa River Newsprint Company plant will be able to manufacture 300 tons a day.

\$32,000,000 Coosa River Plant Using Southern Pine Running 3 Months Ahead of Schedule

COOSA PINES, Ala., Jan. 18—Newsprint from southern pine began rolling out of the \$32,000,000 paper plant here today.

First production by the Coosa River Newsprint Company plant was three months ahead of schedule. The plant will turn out 300 tons daily when it reaches peak operations.

It is the second mill plant in the South and the first in more than 20 years. The other plant

Newsprint Paper Dixie Pines

Commercial Source In More Than Decade And Record For Construction, Production Speed

COOSA PINES, Ala., Jan. 18—A major new commercial source of newsprint from Southern pine had been opened here today. The big \$32,000,000 Coosa River Newsprint Company plant rolled off the first broad sheets of printing-press paper yesterday afternoon.

When shimmering sheets of paper began flowing from multi-rollered machines in the giant mill here, it set a record in plant construction and production speed. It was done within a few weeks after the mill ground out the first pulp from pine logs

...of the part

that F. H. McGraw & Company played in the construction of the Coosa River Newsprint Company mill at Coosa Pines, Ala. In joint venture with Daniel Construction Co. (DANIEL-McGRAW), F. H. McGraw erected the mill and had it in operation three months ahead of schedule.

In addition to being top-flight constructors of new plants, F. H. McGraw & Co. excels in the rehabilitation and modernization of present facilities — mechanical erection, piping, and electrical work. If you are planning a modernization program, write or call the nearest McGraw office for an estimate.



F. H. MCGRAW

AND COMPANY
Engineers and Constructors

HARTFORD • NEW YORK • PITTSBURGH • CHICAGO

is to provide cooking for a high quality pulp and the semi-bleach stock for newsprint. The digesters are equipped with Yarnall-Waring discharge valves. It is understood the pulp run for the first 36-hours was of good quality; shipped to Memphis. The mill working force received packages of "Kleenex" from this run as a souvenir.

The relief steam is condensed in a Fibre Making Processes spray condenser, on the top of an accumulator tank. Amount of heat available in blowsteam is about 2,000,000 BTU per ton of pulp.

Going south across an intervening passage, the 63x98 foot wash room floor is level with the digester control floor. Here is a 3-stage 8x6-ft. Impco washer with preceding Impco deknottedter for the newsprint stock and a 3-stage 8x10-ft. Impco washer and preceding Impco deknottedter for the shipping pulp. Both installations have ventilating hoods furnished by the J. O. Ross Engineering Co. The control and instrument panel came from the Brown Instrument Div., Minneapolis-Honeywell Regulator Co. The wash room structure is largely open but being hemmed in by liquor tanks, blow tank, etc., it is not too subject to inclement weather.

DeZurik 3A special pan type consistency regulators in the pulp mill are after washers and deckers for controlling gravity flow stock to the storage chests. This permitted use of decker and washer chests as regulator stock chests hereby providing a controlled stock consistency for the next processing step without necessity of interposing a regulated stock chest in the system in addition to the usual chest directly after the washers and deckers.

Advantage has been taken of adjustable-speed drives to coordinate and set the rate of flow in the various pulp processing steps. Installation of 31 Reliance V-S drives to washers, bleachers and conveyors provide wide flexibility and precise control throughout the pulp mill.

DeLaval Steam Turbine Co. supplied a variety of 16 cooking, washing and bleaching pumps of capacities up to 4,000 gpm.

Bleaching—Two Systems

Going south again the 62x140 ft. bleach plant section is also largely open on the lower level. Impco's operation is divided into two parts, one a six-stage high density bleach for 80-color for shipping pulp, the other a three-stage semi-bleach for 70-color for newsprint.

Excellent results obtained on the shipping pulp again refute the old contention that Southern pine cannot be fully bleached. The instruments in the bleaching are from Brown. A 20-ton Manning-Maxwell & Moore crane serves the section. DeZurik pan type regulators fit into the Impco bleach washers and are equipped with stainless steel tile vat inserts to fit washer vats.

Adjoining the bleach room is the 88x140 ft. screen room. At the top level here are three Impco rotary screens driven by A.C. motors. Next below are: One 8x10 Impco brown stock decker; one 8x6

WHERE ALABAMA'S CLAY HILLS Merge With the Alleghanies

Childersburg is where the southern Alabama rolling red clay hills merge with the budding Alleghany mountain ranges. Here they assume the shape of long furrowing ranges that break the land into valleys flanked by increasingly steep sided mountains yielding marble, iron, coal and other minerals. Here begins the industrial triangle pointing south; the area for which Grant forced the Tennessee River crossings at Shiloh and Chattanooga.

The town of Childersburg is small. It was smaller before World War II brought the 14,000-acre Alabama Arsenal just six miles away. The influx of population peppered the countryside with dwellings, and some government housing appeared within the town proper. A residual operation of arsenal facilities plus industries that moved in keeps the housing occupied; the enlarged school filled.

Newest industry, neighbor to Coosa River Newsprint Co., is the 15th viscose rayon yarn operation of Beaunit Mills, Inc., which converts high grade pulp from Fernandina, Fla. There still exists surplus power capacity, ample space, good water from the Coosa River, which traverses the Arsenal. Locally, it is said the site was recently considered by Dupont.

The Arsenal is located near the center of two adjoining U. S. Forest Survey units having 8,339,600 acres of productive forest land. The area has been providing pulpwood for International Paper Co.'s mill at Panama City, Fla., and Gulf States Paper Corp., at Tuscaloosa, Ala.

U. S. Route 241, termed the Florida Short Route for Mid-West and Great Lakes area travellers, forms one side of the Childersburg-Sylacauga-Talladega triangle.

Sylacauga

Across a ridge, 12 miles to the south, is Sylacauga, a community having 25,000 population within a 5-mile radius. In the area serving the Arsenal, the population is 80% white, 20% negro, and 98% native born. Weather is mild, averaging 225 frost-free days, with 62.7 inches of annual well distributed rainfall. Sylacauga is noted for its fine marble quarries, being astride the world's largest known vein of high calcium content marble and limestone running as high as 99.2% pure calcium carbonate.

Noted for its textiles, Sylacauga is the home of Avondale Mills, two principals of which—Donald and Hugh Comer—played an important part in organization and financing of Coosa River Newsprint Co. The textile company was established in 1897 by the late Governor Braxton Bragg Comer. The mill at Sylacauga, one of several, employs 3,000 persons.

The area enjoys advantages of nearby coal fields, natural gas piped in, and a surplus capacity of electric power. Sylacauga is served by the main line of the Central of Georgia and by the Louisville & Nashville railroad. The area has a sound agricultural community.

Of particular interest is the already approved 9-foot channel for the Coosa-Alabama River as far upstream as Rome, Ga. This will not only connect to tidewater at Mobile, Ala., but through the connecting Tombigbee River and its projected canal to the Tennessee will provide economic inland waterway transportation to principal markets in the Mid-West and to Chicago.

Many Coosa River Newsprint Co. workers have taken residence in Sylacauga. Here are churches of every principal denomination, a full complement of civic clubs, a modern public library, good schools, a 6,500-person capacity stadium, a 100-bed modern hospital rated among the finest by U. S. Public Health Service, and an ample retail shopping section.

For recreation there is an efficiently operated "center", a municipal swimming pool, athletic competition of all kinds, fishing, hunting, golf, and the theatre.

Many pulp and paper industry travellers have made headquarters at the Sylacauga Hotel, a new 50-room, 50-bath motor court in the business district.

Sylacauga was first founded by Shawnee Indians from Ohio in 1728; was called Chalakagay. The original town was incorporated in 1838; and the current incorporation dates from 1987.

Talladega

Of Talladega, county seat only six miles more distant from the mill, much said of Sylacauga may be repeated. Served by three railroads (Southern Railway, Louisville & Nashville, and Atlantic Coast Line) it is well equipped industrially, having four foundries. One of these does custom casting, has already served the paper mill. Other industries include Bemis Bag Co., The Palm Beach Co. (formerly Goodall Co.), various cotton gins, textile mills, oil mills, dehydrating plants, etc.

Typically Southern, Talladega has tree shaded residential streets, full range of churches, a modern 100-bed hospital, and Talladega College, an accredited school of 300 enrollment. Some of the paper mill personnel have taken residence here. The Purefoy Hotel is noted far and wide for its capacity-challenging meals.

For recreation, the entire area uses the Talladega National Forest. This embraces 350,346 acres, with the focus at Cheaha Lodge, atop Cheaha Mountain, which has an elevation of 2407 feet, Alabama's highest point. A skyway motorway extends along the ridge.

It is approximately 50 miles by motor to Birmingham's big city shopping center from the Talladega-Sylacauga area.

Impco decker; and one 8x12 Impco bleached stock decker. These three units are driven by Reliance Electrical & Engineering Co. motors. On their customary elevated stage are 7 lines of Impco flat screens, with Dunbar drives and Brown instrumentation. On the ground floor

there are General Electric motors. Trim-bey consistency regulators control pulp to bleach system and bleached pulp to dryers.

A small store room adjoins the screen room on the west, and the mill shop (74x227) flanks both on the south, run-



The Industry's Symbol Of The FINEST IN AIR HANDLING EQUIPMENT...

On all classes of industrial equipment are certain makers' names that are universally associated with the ultimate in character and quality of product. On Air Handling Systems—for heating, cooling, controlling and conditioning air—that name is ROSS. The new ROSS name plate (pictured below) on a piece of plant equipment will identify

that plant as one where the most modern and efficient methods are being utilized to insure the finest quality of finished product. It is the symbol of an accurately engineered, carefully constructed piece of apparatus designed to completely fulfill the ROSS high standard of performance.

ROSS
Air Systems

J. O. ROSS ENGINEERING CORPORATION
MANUFACTURERS OF AIR PROCESSING SYSTEMS
350 MADISON AVENUE NEW YORK 17, N. Y.

201 N. Wells Street, CHICAGO-6 • 79 Milk Street, BOSTON-9 • 9225 Grand River Avenue, DETROIT-4 • 600 St. Paul Avenue, LOS ANGELES-14
ROSS ENGINEERING OF CANADA, LIMITED, MONTREAL, CANADA • CARRIER-ROSS ENGINEERING COMPANY, LIMITED, LONDON, ENGLAND

March 1950

SOUTH'S LONG CAMPAIGN FOR ITS OWN NEWSPRINT

The production of newsprint at Childersburg is another milestone in a long struggle to develop a Southern newsprint supply.

As far back as 1876, James Shields, printed an issue of the Marietta (Ga.) Journal on paper made from rags and Southern pine. In 1916, an edition of the Asheville (N.C.) Citizens and Times was printed on Southern pine paper made at Canton, N. C. Southern pine shipped to Canada's Defiance Mills and made into paper was used by the Birmingham Age-Herald for a special issue June 20, 1921. E. W. Barrett, whose father was a Carolina papermaker, was publisher. He addressed a convention of the Southern Newspaper Publishers' Association, urging promotion of a mill. In 1934, the publishers' organization did go on record to promote such a venture.

At the close of the 30's, the newsprint mill at Lufkin, Tex., became assured through efforts of Texas forest owners, newspapers and Perkins-Goodwin Co. of New York.

Successful operation of the Texas mill gave impetus to plans for mills to serve the southeast. Selection of a site narrowed down to the Alabama Ordnance Works, at Childersburg, where power and water supply were already available. Incorporation papers were taken out in March, 1946, for the Coosa River Newsprint Co., with a 200-ton per day mill the objective.

Protracted negotiations for the Arsenal were concluded with the War Department on June 12, 1947, for purchase of 615 acres and a five-year renewable lease (to 40 years) for use of a power house equipped with five General Electric turbo-generators, and a water plant of 23,000,000 gallons per day capacity. The Arsenal had produced smokeless powder during the war, top employment 20,000 persons. On the basis of World War II operation, there exists enough steam and water capacity to run both the ordnance plant and paper mill.

Sights were raised to a \$32,000,000 two-machine newsprint mill and sulfate pulp mill. This brought in Kimberly-Clark, to manage the mill, and to purchase the additional pulp. Arthur G. Wakeman, prominent Kimberly-Clark executive and a former head of the pulp and paper division, War Production Board, was selected as vice president and general manager.

Construction contracts were awarded March 22, 1948, and fir piling was driven May 5, 1948.

The company obtained a 65,000-acre forest lease from Alabama Power Co., and one covering 70,000 acres from Georgia Power Co. Acquisition of fee land forest is progressing, with 100,000 acres the objective.

The entire output of the newsprint goes to 127 publishers. Of \$10,000,000 common stock, 51% is held by SNPA members, 25% by Kimberly-Clark, the balance held variously. Insurance companies advanced \$14,000,000 on 20-year 4% loan. Preferred stock amounting to \$5,000,000 completes financing.

ning the full building width, the whole being a reversed "L". The main shop has all necessary sections for complete mill service. The largest item: a Lehman hydratol lathe. The Farrel roll grinder is at the far end of the main building, adjoining the pulp drying and paper machines spaces but on the ground floor. At the west end of the shop, large doors permit the extension of a monorail with P&H hoists across the railroad tracks. Once heavy items are inside, they are handled by a 40-ton Northern Engineering crane. Clark Equipment Co. fork-trucks are used to handle material.

Groundwood Mill

Knot-free pulpwood is drawn from the conveyor after barking and diverted to

the grinding room. The conveyor takes the wood to an installation of five Roberts grinders where the arrangement of delivery devised by Kimberly-Clark permits one man to feed the battery by push-button control.

The grinders take 5-foot 2-inch logs, the same standard length for chippers commonly used in the South. This length allows double end-to-end stacking on rack cars with adequate clearance, permitting maximum loading.

The five grinders were built by Appleton Machine Co. The 62x66-inch artificial abrasive stones were furnished by the Norton Co., and by Carborundum. The grinders have Westinghouse control and each is powered by a 257 rpm. 3500 hp. Allis Chalmers motor. These motors are

installed in a separate compartment, the drive shafts extending through the wall to the grinders. The grinders have a combined rated capacity of 294 tons per day.

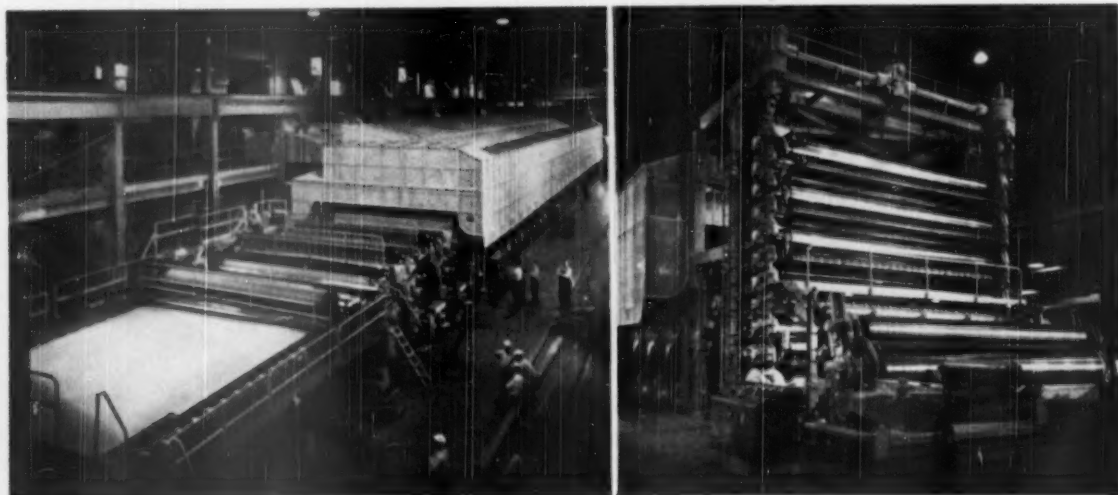
Groundwood stock preparation takes place in the next section (90x227 ft.). Stock here is handled principally by Goulds pumps. This room is served with a 20-ton Whiting overhead crane. Equipment in the room includes five 8x16, two water leg, 250-ton perday capacity Oliver United Filters, Inc., deckers. The vats of these are stainless steel lined, with rubber covered drum. An Askania regulator and head box served the five Cowan rotary screens furnished by Montague Machine Co. The screens are of 75-ton per day capacity. Three of them are primary, one is primary-secondary, and one secondary. The three Haug drainers, furnished by Anton J. Haug, Inc., Nashua, N.H., are driven by Allis-Chalmers motors and equipped with DeZurik stock valves. The Vortraps installation came from Nichols Engineering. The primary has ten 10-inch rubber lined units; the secondary, three 4-inch rubber lined units. The installation was designed to remove grit from 250 tons per day.

Consistency regulators here and through the balance of stock preparation came from Trimbe Machine Co., with each equipped with a Bristol motion recorder. Stock proportioning is done with Fischer & Porter flowmeters, with a separate system for each paper machine. Liquid level controls were furnished by Brown.

Stock chests are of tile, and stock tanks either of tile or tile lined, in all cases the tile work being done by Stebbins Engineering Co. Stebbins also furnished the tile lining for the wire pits, couch pits, tray collectors, etc., on the two paper machines. Chest agitators, as well as those on the paper machine couch pits and the broke disintegrators were furnished by Imcco.

Crane Co. furnished a considerable

WET AND DRY ENDS OF COOSA RIVER NEWSPRINT CO.'s No. 1 paper machine built by Beloit Iron Works. Ross Engineering supplied hoods and ventilating system.



Congratulations

COOSA RIVER NEWSPRINT COMPANY

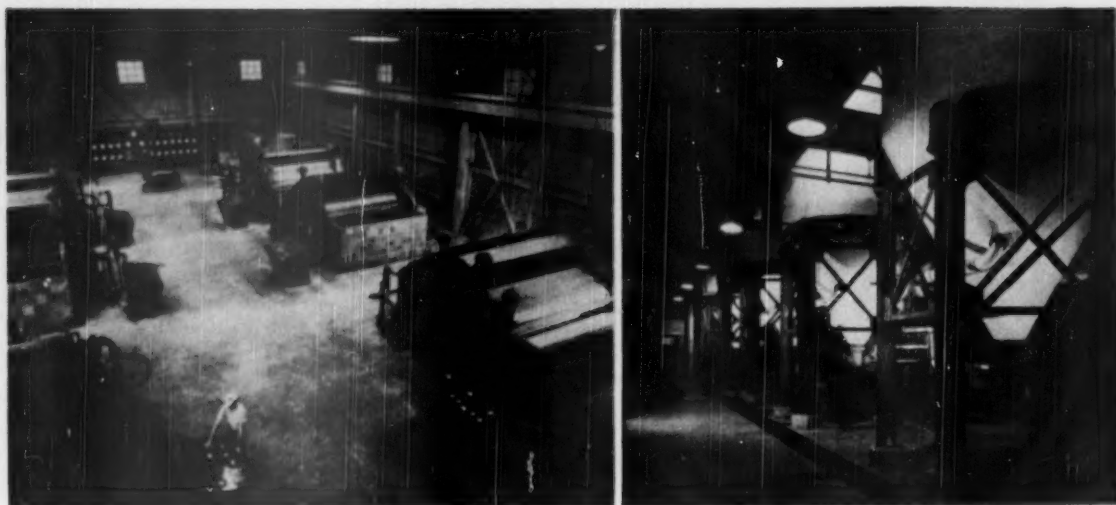
... Our Heart is in the South, Too

Not only our heart but, to be more practical, our equipment is with you to help make your operations as efficient and profitable as the men who planned your new plant have every right to expect. We are happy to have supplied, among other equipment, two Suction Press Rolls, 36" x 238" and two FEATHERLITE Lumpbreaker Rolls, 20" x 230". These rolls, operating as the "business end" of the two Beloit Four-drinier Machines, we are certain will live up to the reputation Stowe-Woodward rolls have earned wherever paper is made.

STOWE-WOODWARD, INC.

► *Craftsmen in Rubber*

NEWTON UPPER FALLS 64, MASSACHUSETTS
NEW YORK OFFICE: WOOLWORTH BLDG., NEW YORK 7, N. Y.



COOSA RIVER'S KRAFT BLEACH PLANT at left and ground floor of DIGESTER BUILDING at right. A six-stage Impeco bleach plant is provided. A. D. Smith Corp. built the digesters. Instrumentation is described in the article.

quantity of special pulp stock and other types of valves, as well as fittings and other piping materials.

Pulp Drying

The finished drying, handling for shipment, or storage of pulp is effected in a 55x450 ft. room adjoining the paper machine section. Here a four unit Impeco feltless wet machine extracts some water, passing the stock in blanket form to a Flakt dryer, furnished through Paper Machinery, Ltd. of Canada. The dryer is of standard design and construction and has a working width of 136 inches. It has nine decks, with complete length of 114-feet 8-inches; width of 12-feet 2-inches exclusive of housing. It is designed to use 100 pounds of steam pressure to dry 150 tons of pulp daily. The manufacturer guarantees maximum heat consumption of 1.3 pounds of steam per pound of water evaporated. The Coosa machine has already as high as 174 tons in a day, dry weight.

The Flakt dryer is followed by a Kamyr cutter and slicer, with the dried stock moved away by a Mathews automatic conveyor. The conveyor takes it through a Baldwin Locomotive Works automatic baler thence via a stock elevator to the shipping floor. The dryer is driven by a Reliance VS motor. The Flakt drying section is served with a 30-ton Whiting overhead crane.

The two complete pulp drying lines, including wet and dry ends, and the cutter are driven by Reliance sectionalized drives. Each section is driven by individual motors, and all are synchronized for operation of the machine over a 2 to 1 speed range.

Refining Equipment

Paper stock preparation and refining is effected in a section which opens to the machine room. The two sections are 122x470 ft. The vertical pumps here were furnished by Bingham Pump Co., and the horizontal type by Goulds. Other

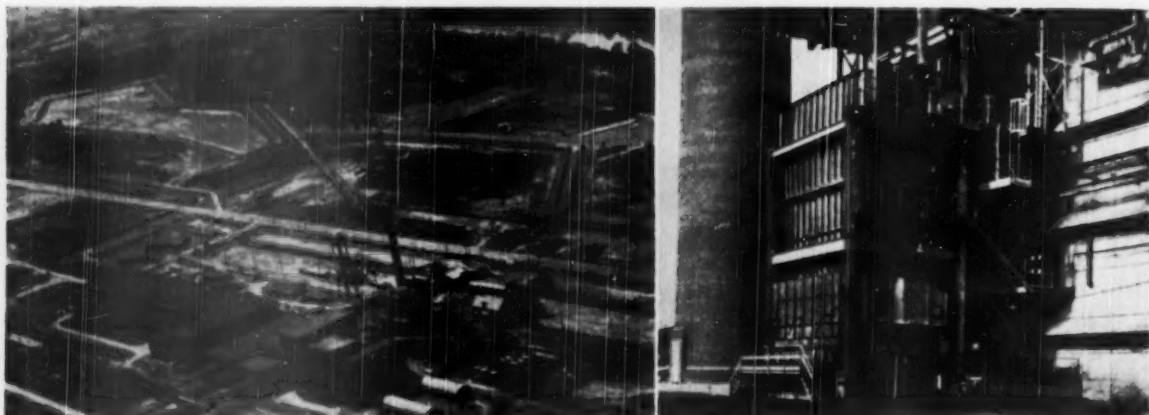
equipment includes a 250-ton per day Allis Chalmers coarse vibrating screen; three Type No. 185 Bauer refiners; six Morden Machines Co. stock makers; two E. D. Jones & Sons jordans.

For handling broke from the machines there is a Hermann disintegrator; four Emerson Jr. No. 2 jordans; and two 8x16 Oliver United Filters, Inc., broke thickeners.

The Paper Machines

There are two identical paper machines, built by Beloit Iron Works, Beloit, Wis. Both have been built to run 1,500 feet per minute with rolls balanced dynamically for 2,000 feet per minute. The Fourdrinier is level, of 226-width, and carries a wire of 100 ft. 6 in. length. All ventilation for the machine hood, which carries many modern features, and for the room itself was furnished by J. O. Ross Engineering Co. De Zurik regulators of stainless steel serve each machine.

AIR VIEW OF THE COOSA RIVER NEWSPRINT CO. and old Childersburg Arsenal grounds of war fame. Note Coosa River at top of picture. AT RIGHT: BABCOCK & WILCOX furnished this modern bark refuse boiler for the mill. Note the outdoor construction and the instrument panel on second level at right.





COLOR... for eye-catching corrugated shipping containers

COLOR gets attention... makes any corrugated shipping container attractive. Immediately it is something *different*... something *distinguished* from the usual... something in demand. It takes a special place in the customer's mind.

You can profit from color by selling *more color*. Many of your customers need this low-cost way to distinguish their product to the retailer.

For information about dyes for corrugated shipping containers... or for help on any coloring problem... consult our Technical Staff. E. I. du Pont de Nemours & Co. (Inc.), Dyestuffs Div., Wilmington 98, Del.

**More color makes more business
...for your customers and you**

FOR MAXIMUM ECONOMY

Du Pont basic dyes

FOR MAXIMUM SOLUBILITY

Du Pont acid dyes

FOR ECONOMY AND LIGHT FASTNESS

Du Pont direct dyes

FOR MAXIMUM LIGHT FASTNESS

Du Pont dispersed organic pigments:

Monastral® Fast Blue BWD or BFP Paste
Monastral® Fast Green GWD or GFP Paste
Lithasol® Pigments
Halapont® Types

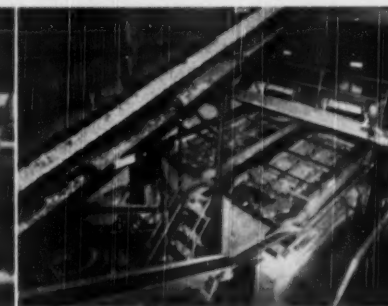
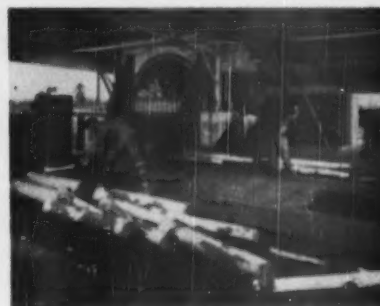
® Reg. U. S. Pat. Off.



BETTER THINGS FOR BETTER LIVING... THROUGH CHEMISTRY



AT COOSA RIVER (l. to r.): NIGHT VIEW—note the lime kiln; FLAKT PULP DRYER supplied by Paper Machinery Ltd. with Impco wet press at this end; and SETTLING BASIN, south of mill, showing mill in distance.



UNUSUAL VIEWS OF CONVEYING EQUIPMENT (l. to r.): LINK-BELT conveyors and sorting tables in front of one of Fibre Making Processes barkers; CHIP SCREENS and chip feeders showing Link-Belt equipment and Manhattan rubber belting; BOTTOM OF CHIP BINS with Impco's new screw discharge mechanism at far end. Manhattan rubber Link-Belt mechanism is above here, too.

Four large No. 3A Bird screens are ahead of each machine. For each machine a Trimble metering stuff box is used in place of the conventional manually operated gate stuff box. The drive is geared to a small adjustable color meter—for easy adjustment of the proper amount of color to be added at all times. The entire unit, in each case, is driven by a 2-hp. General Electric motor tied in with the couch roll drive, so the quantity of pulp delivered to the wire is automatically maintained in exactly the proper relation to wire speed.

A stainless steel-lined distributor, head-box and slice of special design, complete with motor-operated rectifier rolls and slice lift, deliver the stock to the wire. This headbox incorporates various new features developed by Kimberly-Clark engineers, and includes Beloit's latest air pressure control.

Stainless steel is used to box the Fourdrinier run-out beams, for the white-water trays, and for the six flat-boxes which have wax impregnated end grain maple covers.

The suction couches are of 42-inch diameter and are equipped with double suction boxes. The suction box cover conditioners were furnished by Eastwood-Nealley Corp. A dandy and a lump-breaker complete the main Fourdrinier part.

The two Beloit suction presses are straight through presses with 36-inch diameter rubber covered shells and 36-inch diameter granite top rolls. The top rolls

are carried in anti-friction bearings, supported from patented press framing which completely encloses the air diaphragm loading mechanisms, and in which are mounted the control instruments regulating nip pressure. Felts are guided by diaphragm operated swing-type guides. Felt rolls, also, are anti-friction bearing mounted.

The suction press rolls, eight felt rolls and two lumpbreaker rolls are rubber-covered by Stowe Woodward, Inc.

Vacuum for the machine is provided by pumps from Nash Engineering Co., two being mounted on the same shaft with the driving motor in the center. The vacuum recorders, level controllers and recorders were all supplied by Brown Instrument Div.

The paper machine drive is a General Electric amplydne system with speed reducers from Falk Corp.

The dryer section consists of 54 5-foot diameter paper dryers and ten 4-foot diameter felt dryers. The dryer section doctors are Bird Vickerys and Lodging doctors. The steam supply to the dryers is divided into three sections, with temperature and differential control instruments by Brown. The air operated steam control valves came from Fisher Governor Co., and all are equipped with Moore Products Co. valve positioners. The condensate removal system was supplied by Midwest Fulton.

The calender stacks are the outside type with 11 rolls. The bottom roll is of 34-inch diameter, the second roll of

20-inch diameter, and the intermediate of 16-inch diameter. Bird Machine furnished Vickery doctors for the calender stack. Beloit furnished the calender stack.

The patented Beloit reel is equipped with air cylinders, both in the starting and winding positions, to give accurate control of roll-to-drum pressure. Heavy duty unwinding stands and Beloit double drum winder, complete with latest shaft and roll handling equipment, are built for 4000 fpm paper speed.

All air motors on the machine were furnished by Ingersoll-Rand; the lubrication system by Bowser, Inc.; the automatic pH control instruments by Leeds & Northrup; the paper machine stuffmeter by Trimble. Showers for the machines were supplied by De Zurik Shower Co. along with strainers and blowout valves and De Zurik bronze stock valves are in wide use.

Goulds pumps are widely used as stock pumps. Bingham Pump Co. supplied vertical pumps in refining.

A Langston 72-inch Type "CA" Slitter and Rewinder is provided. It is built to slit and rewind rolls up to 50 inches in diameter and operated at a maximum speed of 1500 fpm. It is driven by a variable speed motor. The machine is equipped with combination friction and power driven shear cut slitters, and the mill roll or unwinding stands are equipped with a water-cooled brake.

Power and Recovery

Electrical energy for the mill is furn-



MORE

Rapid

DRAINAGE

provided by

SUTHERLANDS

Increased Tonnage, Improved Quality and Reduced Cost per Ton of paper all result from the better, more rapid drainage of stock, properly refined by Sutherlands. All are "musts" for profitable mill operation today, but better quality results from stock properly prepared at a high drainage rate. More rapid drainage is provided by Sutherlands, plus additional refining output, without using any more power or floor space than you are now using. Give a few moments' thought to what all this can mean in your mill, then ask for our recommendations.

**SUTHERLAND
REFINER CORPORATION**

TRENTON, NEW JERSEY—Manufactured in the United States
by Valley Iron Works Co., Appleton, Wisconsin
Sutherland Refiner Ltd., Windsor Hotel, Montreal, P. Q.

THE MEAD SALES COMPANY
230 PARK AVENUE, NEW YORK 17, N. Y.
20 NORTH WACKER DRIVE, CHICAGO 6, ILL.



DISTRIBUTORS OF WOOD PULP
BLEACHED AND UNBLEACHED
CHEMICAL AND MECHANICAL WOOD PULP



To prove how fast he was on his feet, Paul Bunyan would blow out the bunkhouse lantern and get to his own shack before the light faded!

A reproduction of this incident from the fabulous life of Paul Bunyan—the fiftieth of a series—will be sent on request. It will contain no advertising.

STANDARD ENGINEER'S REPORT

DATA	
LUBRICANT	<i>Calol Turbine Oil</i>
UNIT	<i>Bethlehem Turbines-Falk Gears</i>
CONDITIONS	<i>134 R.P.M.-H.P. 28,000 Max. 22 1/2 knots max.</i>
SERVICE	<i>17 years-S.S. Lurline</i>
FIRM	<i>Matson Navigation Co.</i>

Turbine gears in perfect condition after 17 years service!

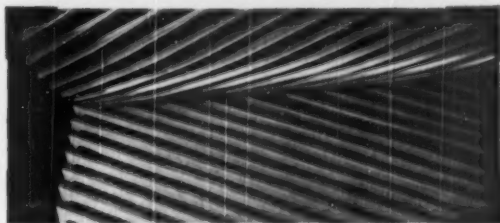
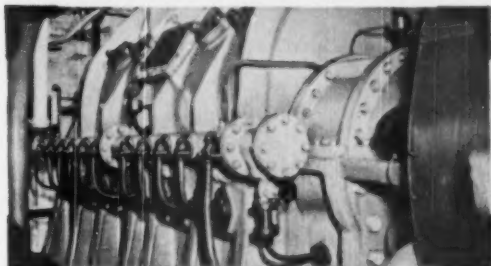


PHOTO TAKEN THROUGH AN INSPECTION PORT shows the excellent condition of turbine reduction gears in the S.S. Lurline after 17 years of service. CALOL OC Turbine Oil lubricates them. Note there are no signs of corrosion or pitting; no sludge or lacquer deposits.



RECENT CHECK OF THE GEARS disclosed practically no wear. Semi-annual tests of the charge of CALOL OC Turbine Oil show no acidity or deterioration. It filters clear. Only addition is make-up to replace leakage.

REMARKS: On inspection, Marine Engineers pronounced the gears "in perfect condition for continued service." CALOL OC Turbine Oil is recommended for all steam turbine lubrication.



STANDARD TECHNICAL SERVICE checked this product performance. If you have a lubrication or fuel problem your Standard Fuel and Lubricant Engineer or Representative will give you expert help; or write Standard of California, 225 Bush Street, San Francisco 20.

Trademark "CALOL" Reg. U. S. Pat. Off.

**How CALOL OC Turbine Oil prevents
sludging, rusting and wear**

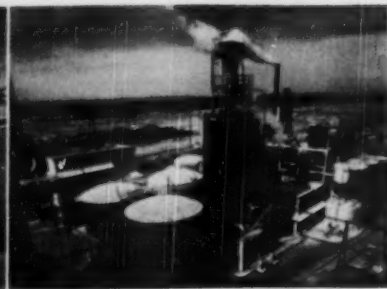


- A. Excellent metal-wetting ability keeps CALOL OC Turbine Oil on bearings and gears under the heaviest loads--assures constant lubrication.
- B. Oxidation inhibitor resists highest operating temperatures; prevents sludge, gum and lacquer formation on parts and in oil systems.
- C. Corrosion inhibitor stops rusting even in initial turbine operation, stops action of both fresh and salt water.

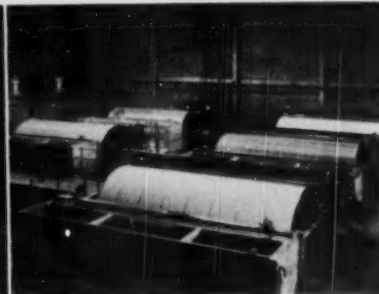
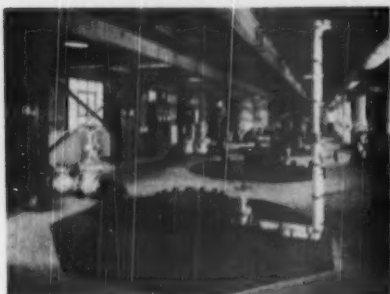


THE FAMOUS S.S. LURLINE, running on a fast schedule between the West Coast and Honolulu, has traveled 1,500,000 miles on the turbines and gears originally installed in 1932.

STANDARD OIL COMPANY OF CALIFORNIA



MORE COOSA RIVER VIEWS (l. to r.): IMPCO BROWN STOCK WASHERS (newsprint line at left; kraft pulp for Memphis at right); FIBRE MAKING PROCESSES BLOW TANKS AND CYCLONE SEPARATOR OUTSIDE PULP MILL (Ingalls of Birmingham built many tanks); and DORR CAUSTICIZING plant viewed from top of pulp mill.



AT COOSA RIVER (l. to r.): DIGESTER OPERATING FLOOR with Foxboro continuous controls on each A. O. Smith digester; GRINDER MOTOR ROOM with 3500 hp. motors for the Roberts grinders on other side of wall (motors thus protected from humidity); and OLIVER UNITED vacuum filters in the groundwood decker area. Here screened groundwood is thickened.

ished from leased arsenal facilities which include five 5000 KW double-extraction General Electric turbo-generators (400 lbs.-150 psi-50 psi).

Steam is generated in a Combustion Engineering recovery boiler, that company's largest type. It was designed to burn 750,000 pounds of black liquor solids each 24 hours, and to produce steam at 590 psi at 730 F. The mill used 450,000 lbs./Hr of 600# steam. It also uses 70,000 Lbs./Hr. of 150# steam, and 175,000 Lbs./Hr of 50# steam. Low pressure steam is provided from a bark burning boiler supplied by Babcock & Wilcox.

The sextuple effect black liquor evaporator as well as the lime mud filter were supplied by Swenson Evaporator Co. The evaporators are set close to the building and open at the bottom. The recovery boiler house is 75-8 ft. and 105 ft. high.

The lime kiln's hot chamber is about 170 feet long. It is operated with gas formed by a coal distillation unit served by a Jeffrey conveyor and hammermill. There is a United Conveyor ash and dust removal system. The chemical operation includes a standard type Dorr causticizing installation. Water for the boilers is treated by Permutit. There is a Research Corp. precipitator and Alphonse Custodio of Chicago put up the high brick chimney.

A Merrick Feedweight is used with 20-ft. belt centers, to continuously feed pebble lime to the process.

There are approximately 60 tanks of all sizes inside and outside of the mill buildings, all built by Ingalls Iron Works, Birmingham, Ala. These include the blow

FOR THE ASSOCIATION

Statement of Clarence B. Hanson, Jr., president, Southern Newspaper Publishers' Association:

"It is with great satisfaction to all members of this association that the Coosa River Newsprint Co. is now in production with another 100,000 tons annually of Southern newsprint. This association most heartily congratulates and expresses its appreciation to Kimberly-Clark Corp., to Birmingham business men under the leadership of Donald Comer and Edward L. Norton, and to its own newsprint mills committee, all of whom worked for so long and in such complete cooperation."

tank, liquor tank, foam, soap, and turpentine. A 100,000 gal. elevated tank providing water under gravity pressure for the automatic sprinkler system was built by Chicago Bridge and Iron Company. The turpentine recovery system, came from Fibre Making Processes.

Among stainless steel uses, it is interesting to note a number of Tri-Clover Machine Co. Zepher Weld tube and O. D. fittings. These stainless steel fabrications are butt-welded tube-to-tube and Banston joined to valves and special fittings.

The steam relieved from the top of the digester during the cooking process contains turpentine. This steam goes first to a cyclone separator to remove fibers and liquor, then it goes to a condenser. The condensate is a mixture of water and turpentine and empties into a decanter where the turpentine floats on the top of the water and is decanted off. The amount of turpentine can vary from 2-4 gallons per ton according to method of cooking.

Longview Fibre, Thilmany's Perfect Safety Records Go On

Again as we went to press this month, Longview Fibre Co., Longview, Wash., and Thilmany Pulp & Paper Co., Kaukauna, Wis., were still extending their perfect safety records. In several recent issues, we have reported the monthly progress of these two big kraft mills in their remarkable accomplishments.

"As of Feb. 15, no employee of Longview Fibre Co., Longview Division, had lost time due to an industrial accident for a period of 196 days," proudly reported R. S. Wertheimer, vice president and resident manager. "As of that date, total man hours without a lost time accident was 1,780,982."

Thilmany Mill Keeps Going On Remarkable Safety Record!

As of Feb. 1, Thilmany Pulp & Paper Co., Kaukauna, Wis., was still rolling along to a remarkable safety record. Its 1230 employees had compiled 292 days up to that time, and were practically right on top their goal of 2,000,000 man-hours without a lost-time accident.

Safety at Savannah

The Savannah, Ga., operations of Union Bag & Paper Corp. had a 49.5 per cent better safety record in 1949 than it did in 1948. Lost time cases were 96 last year and 216 in 1948.

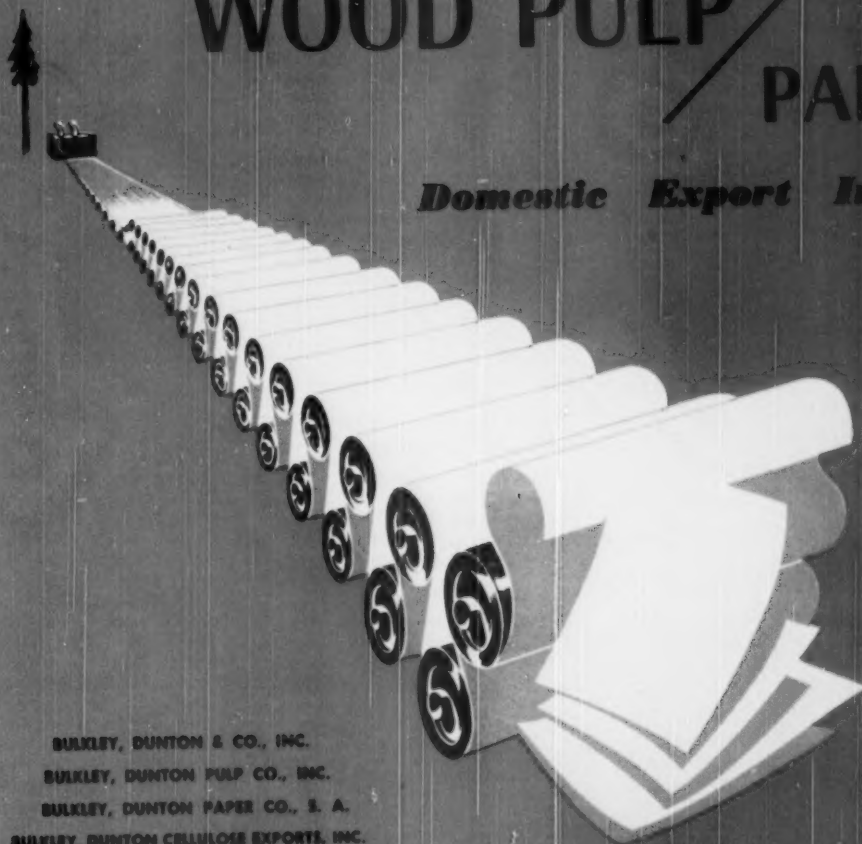
The safety department put 2727 pairs of safety shoes into use in 1949 and 871 pairs of goggles and glasses. It corrected 144 mechanical hazards. Manager T. T. Dunn urged employees to strive for an even better record in 1950.

Offices and representatives
in 60 cities in the United States,
Europe, Latin America, Africa, and Asia



WOOD PULP PAPER

Domestic Export Import



BULKLEY, DUNTON & CO., INC.
BULKLEY, DUNTON PULP CO., INC.
BULKLEY, DUNTON PAPER CO., S. A.
BULKLEY, DUNTON CELLULOSE EXPORTS, INC.
BULKLEY, DUNTON PAPER (FAR EAST) CO. INC.
In New England —
CARTER, RICE & CO. CORPORATION

BULKLEY-DUNTON
ORGANIZATION
295 MADISON AVENUE, NEW YORK 17, N. Y.



CROSSETT MACHINE—A New Era



GENERAL VIEW of Crossett Paper Mills showing from left to right: The Research Building; the big machine room with office in foreground, and the pulp mill, with service building in foreground.

AT LEFT, THE PULP MILL; and at right, new building to house Combustion Engineering recovery boiler.

With start-up of the new Beloit machine at Crossett Paper Mills, Crossett, Ark., shortly after the first of the year, there was ushered into the Southern kraft industry another new era. The newness of what is to come will be based on the production of lightweight kraft paper on a Fourdrinier machine at high speed. In running lightweight kraft on Fourdriniers in the South to date, the speed had to be slowed down to the point that operation was uneconomical.

Many features of the new paper machine are the product of extensive study and forethought by K. O. Elderkin, Crossett mill manager, and his staff. The machine has perhaps the longest forming

section on record so far, and has a clover-leaf design press section. The objective of the design has been to provide a satisfactorily long forming period for the sheet on the wet end and to assist it into the press.

The machine is served by Shartle Jordans, Cameron winder, Ross Engineering hood and ventilation and General Electric drive. General purpose motors came from Westinghouse and Reliance; switch gear from Square D Co., Westinghouse and G. E. Rust Engineering were contractors.

A Combustion Engineering boiler, Western Precipitation Cottrell precipitator and Goslin-Birmingham evaporators were still to be completed.

About "Slim" Bullock, Now No. 1 Supt. in Southeast



Raymond C. Bullock (right), who is this year's chairman of the Southeastern Division of the Superintendents Association, is better known as "Slim" to his many friends. He was born, educated, married and started his career in Georgia but prior to the

war migrated a bit to the north and has been the pulp mill superintendent at Ecusta Paper Corp., Pisgah Forest, N. C., since March 1944.

Sports have been a major interest for Mr. Bullock, who during the war coached the football team at nearby Brevard, N. C., High School. He also organized the Brevard Junior High School "Midget" sports teams and was a charter member of the Brevard Athletic and Recreation Association, as well the Brevard Elks.

Born Feb. 5, 1912, at Athens, Ga., he attended Piedmont Institute and Mercer University in that state. He was married May 23, 1935 in Brunswick, Ga., to the former Roberta Allen, and they have a 10 year old son and one year old daughter.

Mr. Bullock was assistant construction engineer for Chicago Bridge & Iron Co. in erection of the Brunswick, Ga., mill and the National Container and Rayonier mills at Fernandina, Fla. Then he worked two years in the Brunswick mill before joining Ecusta when that company built its new cigaret paper mill at Pisgah Forest in 1939.

JOHN WESLEY HANES, former under secretary of the U. S. Treasury and New York finance executive, has been elected a vice president and director of Olin Industries, Inc., it is announced by John M. Olin, president. Mr. Hanes is a director of Ecusta Paper Corp. of Pisgah Forest, N. C., recently acquired by Olin, where a new cellophane plant "will be expedited by the use of Ecusta's plant site and surplus facilities for water treating, steam and power, as well as Ecusta's technical personnel."

C. L. WOOLSEY, multiwall bag sales representative for Union Bag & Paper Corp. in the South Central territory, has been appointed head of marketing research and development for Union's multiwall department, with headquarters in the company's New York office.



SOUTH

DONALD J. HARDENBROOK, vice president and director of the Union Bag & Paper Corp., has consented to act as 1950 Chairman of the Paper Division of the Commerce and Industry Committee of the New York Heart association campaign.

R. W. WORTHAM, JR., executive vice president of Southland Paper Mills, Lufkin, Tex., has been re-elected president of the Texas Forestry Association which met in Lufkin.

IN SOUTHERN INDUSTRY NEWS (L to R.): L. W. PARTEN, now represents Houston, Tex., sales district for The Foxboro Co.; J. M. TEMPLE, recently named Branch Manager for Foxboro at Baton Rouge, La. ROY H. SUTTLE, who recently joined "HANK" JONES, who serves Southern territory with Manhattan Rubber Co. and Cabbie Wire. Mr. Suttle continues to make his headquarters at Jonesboro, La. He is nephew of late Bruce Suttle, veteran southern superintendent, and was employed at Southern Advance Bag & Paper Co. for 13 years.



You should try



Swift's new process* Glue...

for Clay and Pigment Retention,
for Saveall Systems,
for Improved Pick Test.

Many paper mills are using this improved product in their formulations. They're having remarkable success. Swift's new process Glue helps maintain clay and pigment retention at a high, uniform level, helps operate flotation-type Savealls with more efficiency, and helps produce paper with a higher Pick Test.

High Retention of Clay and Pigment!

In slick paper production, Swift's new process Glue is being used successfully. It saves an unusual percentage of clay and titanium dioxide by keeping it on the screen. And it is economical because it can be used at low concentration. Swift's Glue is easy to prepare—easy to handle.

High Recovery in Flotation-Type Saveall!

In the Sveen solution, Swift's new process Glue has a very high recovery efficiency. Mills report an increased fibre recovery because Swift's Glue tends to "flock" at the right time. Results are consistent and uniform.

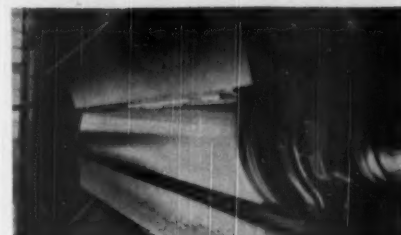
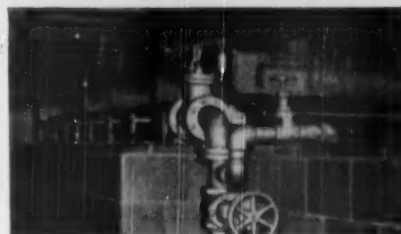
Swift's new process Glue is easy to handle in this operation, too. It goes into solution rapidly with a minimum of foam. Clearer effluents are obtained.

Higher Pick Test

In production of paper that needs increased Pick Test, papermen have found Swift's new process Glue an efficient agent. As a partial replacement for starch in a machine coating operation, Swift's new process Glue has shown greater film forming properties and tensile strength than a total starch solution.

Another desirable characteristic of Swift's new process Glue in this operation is that it is a natural, water-soluble type of protein which is grease-resistant.

For more information write



SWIFT & COMPANY

Adhesive Products Department PP1
Chicago 9, Illinois

I am interested in Swift's new process Glue. Please send me the following:

_____ pounds for a practical test (at quantity price)

_____ pounds for sample purposes

_____ latest information on this new process glue

This offer expires May 1, 1950

Firm _____

Address _____

City _____ Zone _____ State _____

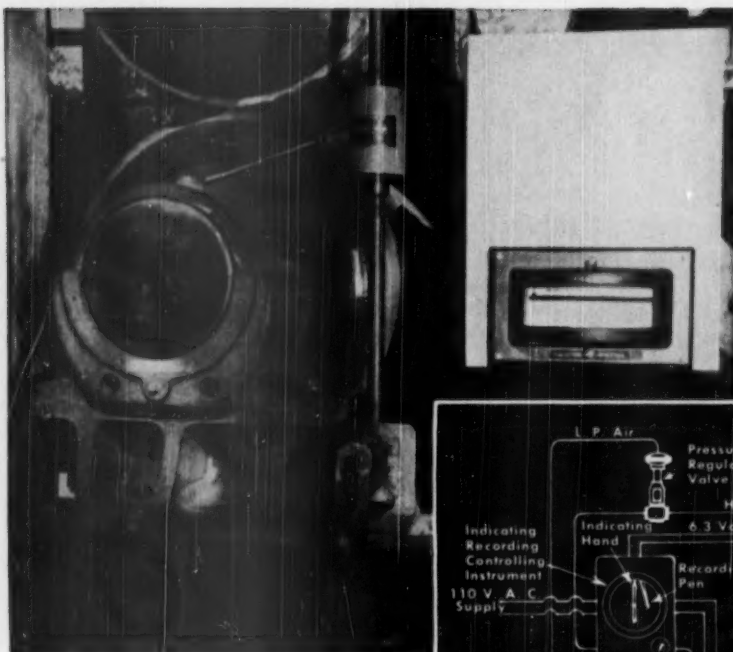
Signed by _____

*Swift's new process Glue made by an exclusive process!

Swift's new process animal Glue is a highly efficient processing agent because it is made from fresh bones by an exclusive, patented Swift method... a method that assures a uniform, light-colored glue of unusual purity. This method permits precise synchronized control and minimizes contact with foreign or contaminating substances.

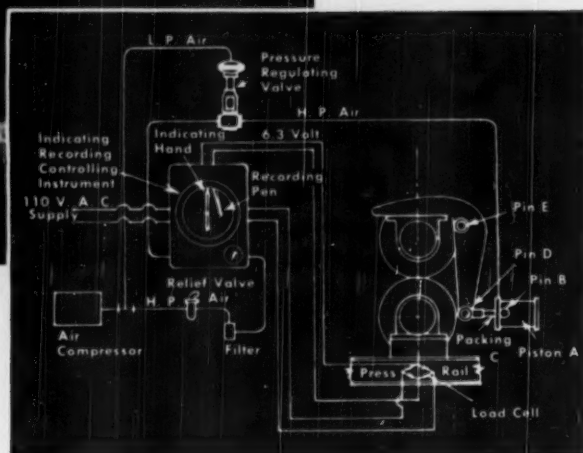
March 1950

63



Pacific Coast Representative:
JOHN V. ROSLUND
 Pacific Bldg., Portland 4, Ore.

Photograph left and diagram below show Downingtown's new loading device. Note that all points A, B, C, D and E which may cause uneven loading are by-passed by the control system.



NEW
 and
PROVED

DOWNINGTOWN LOAD METER

Eliminates "Hit or Miss" Roll Loading

Every paper maker knows that it is practically impossible to maintain uniform nip pressures clear across a press roll with weights or by pneumatic or hydraulic cylinders. Even though every precaution is taken, there are too many variables—roll crowns, friction of fulcrum pins and cylinder packings, dull lever knife edges, etc. Therefore, even with equal weight positions on front and rear sides of a press, loading will vary appreciably between front and rear. Downingtown engineers have now solved this problem

with a new and proved direct roll loading, recording and controlling device that eliminates "hit or miss" methods in roll loading. This load meter, utilizing the SR-4 bonded wire strain gage, has no moving parts to wear, does not change its calibration with constant use or with normal temperature changes, is simple, inexpensive to install, and accurate. Write for more information on this exclusive Downingtown load meter that assures accurate roll loading with consequent improvement in machine operation.



DOWNINGTOWN MANUFACTURING COMPANY

DOWNINGTOWN, PA.

DESIGNERS AND BUILDERS OF PAPER MAKING MACHINERY SINCE 1880

Development Engineering

By P. R. Sandwell—(Continued from page 44)

of function at the expense of greater intricacy of equipment, a condition which requires far more accurate planning. Thus we find both the economic and the technical background for development contributing to the same end, more scientific, more careful and more complete design than ever before.

If I can promote, by their advocacy, the greater use of scientific methods, I shall feel my time has been well spent. In a sense, my purpose is to combat a method of reaching a decision regarding new plant so prevalent in this industry, which is to base it on a sort of "Gallup Poll" of what others are doing rather than a reasoned analysis of what needs to be done in a particular situation. Such an analysis, in my opinion, is the only approach to economic advance—through progress in change: true "development engineering."

Development Through Evolution

As a matter of practical fact, most development takes place through evolution rather than through sudden change. For example, the Pacific Coast has seen a rapid improvement in hydraulic barking technique since 1944. This is because the advantage of hydraulic barking in itself made many new installations economic and necessary. With each new installation, and with no apparent relationship between the engineers concerned in each case, important improvements were made to the end that the latest hydraulic barking plans are simpler and less costly than the first. Nevertheless the first hydraulic barker represented a tremendous step forward compared with any of the improvements which have followed. It is still doubtful if replacement of one of the original plants by one of the newer plants could be justified, except where an increase in capacity is required.

There is a great need in the industry for new developments, all of which should be as far-reaching in their effect as was the first hydraulic barker. This urgent need is perhaps the greatest reason for the advocacy of the greater use of the scientific method in development engineering.

Theoretical Methods

The value of theoretical methods in development engineering is essentially economic. They are the cheapest methods. For example, in designing a beam, it is not necessary to make a trial one, and to test it for strength. The theory of elasticity is so well understood that it can be used without risk. In the pulp and paper industry, the laws of hydraulics, statics, and thermo-dynamics are accepted and used. Unfortunately, in our process work, theoretical methods of predicting performances are little used. For example, in the case of paper machines, such matters as Fourdrinier drainage, press dehydration, dryer evaporation and so on, are commonly predicted upon the basis of empirical relationships. All of these things can be predicted theoretically by methods which, though more complicated than the more commonly used theories cited previously, are within the grasp of people who have completed the usual courses in mathematics and physics taught at our colleges.

One of simplest methods of establishing scientific formulae for process design is to first of all set up an equation containing all of the variables that might be expected to have a bearing on the matter. Then by controlled experiments and observations, sufficient data can be collected to enable fairly reliable constants to be assigned to the formulae with the result that within a practical range, they can be used as the basic scientific tools. This method has been used for predicting the per-

OTHER EXCELLENT PAPERS GIVEN AT EVERETT MEETING



presided as chairman of the sponsoring Coast Technical Section.

The talk by Mr. Sandwell, first published on these pages, was an outstanding one.

L. M. "Bud" Johnson, resident engineer, Soundview Pulp Co., gave another excellent paper on "Engineering Materials and Factors Influencing Their Selection" especially analyzing many factors that should be considered in selecting anti-corrosive materials, from first cost through upkeep, and involving such considerations as workability, obsolescence, etc.

C. D. "Chet" Reis, industry specialist for General Electric, Seattle, told the whys and wherefores of natural grounding of industrial power systems.

A fascinating and unique movie showing the "insides" of new wet wood refuse burners, including one handling wood up to 60% moisture, and another experimental unit in the South for spent naval stores plant wood chips, was shown by Combustion Engineering-Superheater, Inc. Otto de Lorenzi, CE's director of education, made the accompanying talk.

formance of paper machine table rolls of various sizes, in determining the design of paper machines designed to operate at speeds in excess of those presently experienced.

The use of theoretical methods, however, requires that the basic data on which the theories are based are reliable and correct. Some of the data is available to all of us as a matter of record. The rest of it must be gained by observation. I sometimes feel that the tremendous value of the transaction of your associations and those in other countries is overlooked. I make a practice, in tackling any new problem, of first of all collecting a bibliography in respect to it. It is interesting to find how often other people have faced the same problem, have collected data upon it, and have then published it.

The second method of obtaining data, by observation rather than by opinion, should be more widely used than it is. I recall hearing an example of the need for observation in a military problem of development during the last war. During the early fighting in the Western Desert, it was reported that the gunsight used by the British were inferior to those used by the Germans because the Germans were knocking out our tanks whereas we were not knocking out theirs. Consequently, an army development group in England was instructed to develop a more accurate gunsight. They had made some progress when a captured enemy gunsight was placed in their hands. They were amazed to find that it was not nearly as accurate as the equipment which they were attempting to improve. On closer inquiry they found that the original problem was caused, not by the fact that our shells were not hitting the enemy tanks, but because the shells were not penetrating them. Therefore, the cure had to take a very different form.

So often in our industry, parallels to this situation arise, partly because observation is left to people who are not competent to observe, and partly because the observations are not always sufficiently thorough. As a case in point, the recent design of a new paper ma-

chine was based extensively upon evidence gained by means of high-speed photographs taken on several contemporary operating fourdrinier machines. Ills ascribed to the stock inlets on these machines were found to arise not from the stock inlets at all, but from the table rolls and table roll baffles. To be precise, a certain pattern in the formation had previously been thought to be due to the collapse of air bubbles carried in the stock inlet jet, whereas actually they were caused by the collapse of small droplets of stock thrown into the air as a result of the sudden change of direction of the wire upon leaving each table roll.

Besides photographic tools for observation, there are the recording instruments with which most mills are now equipped. The charts from these instruments in most cases are used for the guidance of the operators and more generally for statistical and accounting purposes. After the statistical information has been obtained, the charts are usually stored and are never seen again. I have found in so many cases that the charts contained many clues which are helpful in the design of new plants. Furthermore, the intelligent use of portable recording equipment can often provide data from which more accurate theoretical design can stem.

Experimental Methods

The reduction of risk in development engineering requires the experimental proof of conclusion reached by theoretical means. In other words, while our theories and formulae may be based upon data obtained scientifically, we may be attempting to design for a condition for which there has been no previous operating experience. Therefore, before our theories are used as a basis for the expenditure of funds, it is prudent for us to test the theories. It is at this point that our scientific method begins to give trouble because the means of experimenting are available to us in a very minor degree. To the best of my knowledge, there is no counterpart in the pulp and paper industry to the great hydraulic engineering laboratories, which represent the greatest chance in this field in modern engineering. It is difficult for us to experiment on commercial equipment because not only are we usually trying to design for a condition beyond the scope of the equipment in question, but also because (for good business reasons) it is impossible to conduct a controlled experiment in which each of the variable affecting the problem is varied in turn while the others are kept constant.

This leads us to a consideration of small scale or laboratory experiments, which in themselves are favored because they tend to reduce expense. The Swedish industry has recognized this problem and, due to a more favorable taxation situation than exists on this continent, has been able to construct a well-equipped experimental pulp and paper mill in Stockholm. Most of us who have visited Sweden in recent years have seen the plant.

While there are many who believe that the cost of such an engineering laboratory cannot be justified, it seems to me that there are two reasons why it will probably prove to be useful.

In the first place, machinery builders on both this continent and in Europe have gained valuable data from laboratories of a limited and crude nature. Even better information should be obtained from a laboratory that is properly designed and equipped.

In the second place, we have many examples in the industry of the results of trial-and-error methods of experimenting, in which fairly expensive improvements are tried, and, if they fail, are abandoned. Many of the ideas upon which these experiments are based are sound, but they fail because they cannot be properly tried in commercial operation. A few years ago, a Montreal engineer made a serious attempt to estimate the annual cost of the failures experienced by the trial-and-error process, and came to the conclusion that there would be little difficulty in justifying the expense of constructing an engineering

laboratory in Quebec, comparable to the new laboratory in Stockholm.

Model Techniques

In some respects, the cost of the experimental confirmation of theoretical conclusions can be reduced by the use of scale models. For example, in the case of stock chests and agitation, we have used models built to 1/10 of the size of the prototype. While we have not been clever enough to determine scale effects, such as are used in similar work in hydraulic engineering, we have been able to obtain sufficient qualitative information with regard to areas of stock settlement and the like to enable us to predict the performance in a full-scale installation. In one case, following the construction of the finished tanks, we conducted experiments in full-scale identical with those carried out on the model, and found remarkably close agreement between the two. Similarly, we have tested stock inlet designs by means of models and have been able to predict performance with little difficulty.

There is, however, another important use for models which I would like to bring to your attention. In the design of industrial plants, the engineer can only illustrate his ideas by means of drawings. Because of his training, he is able to visualize a three-dimensional arrangement in a two-dimensional plane, but it is very difficult for him to convey his ideas to people who do not have a similar training. There are many cases where full agreement has been reached in the drawing stage, between the engineers and the other people who are interested in a project. And yet, when the plant is finished, violent disagreement has broken out between the interested groups for the reason that the non-engineering people were not able to visualize the final plant when they examined the drawings.

Most of this difficulty can be avoided if the drawings are translated into small-scale models. Such methods makes it easier for the engineers to design his plant in the first place. They make it very much easier for the non-engineering people to see what is intended, and for them to draw upon their wealth of experience in time to influence the design. One of the leading paper companies in the Middle West has used this method to great advantage. The method is widely used by architects in dealing with public bodies. It could well be followed by our industry.

Cooperative Effort in Development

The discussion about the models leads to some further comments about cooperative effort in development engineering. No engineer is so competent that his ideas cannot be improved upon by others. It may be true to say that few people who are not engineers can design, but that does not mean that they are not able to criticize design very effectively.

In small organizations, it is not difficult for all interested parties to contribute towards the design of a project by very informal means. On larger projects, however, informality can only lead to trouble.

In my experience I have found it essential to establish formal means of exchanging ideas between all those who are interested in a project. The formal means begin with formal meetings which follow a written agenda where discussion is free and frank, but recorded, and where definite conclusions are reached and recorded before the meeting is adjourned.

I have also found it desirable to establish at the outset which members of an organization are to take the responsibility for expressing the point of view of the various interested groups. These individuals are then provided with complete data as the project proceeds. They are provided with prints of flowsheets and drawings, copies of specifications, and copies of design notes. It is necessary that the design notes be a little more complete than the engineer requires for his own purposes in order that their full import may be understood. To be sure that this design information is studied and read, it is well to see that the recipients acknowledge the fact that they have read or studied it, and that they

BULLETINS — LATE NEWS EVENTS

Hudson To Build New Mill at Palatka

Hudson Pulp and Paper Corp., New York, is now placing orders for equipment, and contracts for construction, of a new unit to its Palatka, Fla., operation. The new unit will, in fact, duplicate to a certain extent the existing Palatka mill, built entirely new a few years ago, although may not match it entirely as to equipment and products.

More Increases Coming In Mexico's Papermaking Capacity

Fred Hajjar, of the American Embassy, Paseo de la Reforma 64, Mexico City, reports that there is still going to be further increases in the papermaking capacity of mills in Mexico during 1950.

Mr. Hajjar is on intimate terms with nearly every company official in the Mexican paper industry and has supplied his government with many interesting reports on forestry, lumber and paper and was very helpful to a touring PULP & PAPER editor there.

Union Bag To Spend \$1,600,000 at Savannah

High officials of Union Bag & Paper Corp., Savannah, Ga., have decided to expend \$1,600,000 on a new warehouse and other facilities, and have also allocated some additional funds for improvements. The latter does not include money for a proposed No. 6 machine, as has been rumored, although No. 6 may be in erection state in the next two or three years.

New Scott Machine Ordered

Scott Paper Company, Chester, Pa., announces plans for the installation of an additional high-speed tissue machine—the tenth—at the Chester, Pa., plant. The machine, supporting equipment and building, are expected to cost about \$4,000,000 and will start up in late 1950.

Damage in Longview Plant

A freak explosion of dynamite recently at the rock quarry near the Weyerhaeuser pulp mills at Longview, Wash., resulted in several rocks flying through the roof of the Weyerhaeuser power house and demolishing an air compressor. The direction the rocks took was attributed to the explosion hitting a mud seam.

LaTuque Safety Record

The kraft mill of Brown Corp. at LaTuque, Que., has passed 1,000,000 hours of work without a lost time accident and although early records are not available it is believed certain that this is the best safety record in the Canadian mill's history since it began in 1910, says W. B. Beckler, works manager.

understand it, and either have comments which they express in writing or have no comments, and record the fact that they have none.

These methods are perhaps tedious and to some extent they add to the cost of engineering. However, it is my belief that the cost is more than repaid by better design and by more rapid execution.

KVP Espanola Mill Will Not Be Forced to Close

Injunctions obtained by fishermen, farmers and tourist resort owners threatened to shut down this month one of Canada's recently modernized pulp mills, KVP Ltd. at Espanola, Ont., representing an investment of several millions of dollars and providing employment for 1400. However, when the facts of the situation were effectively represented to the government of Ontario, assurance was given that the mill would not be forced to close.

Premier Frost of Ontario informed a delegation early in February that, in his belief, public interest is not being injured by operation and that pollution has been reduced to a minimum and is under control.

Wisconsin Mills Await Answer About March 15

The Wisconsin state pollution committee has until March 15 to reply to the request of six Wisconsin pulp mills for an extended time of one year in which they will research and engineer methods for abating stream pollution and will submit plans to the committee. A decision on the request much before March 15 is not anticipated.

T. E. Wisniewski, new state pollution commissioner, told PULP & PAPER that Feb. 9th meeting at Madison, Wis., was taken up mostly with the committee's study of testimony at the Green Bay hearing in December.

The six mills which asked extension are Hoberg, Northern, Kimberly-Clark and Consolidated's Interlake in sulfite, Thilmany in kraft pulp and the new semi-chemical Green Bay pulp mill.

Scheuermann Resigns; Lathrop Supervises Sales

Joseph S. Scheuermann resigned as vice president and sales manager of Cameron Machine Co., Brooklyn, N. Y., effective Feb. 17. A new sales manager will be announced in the near future. In the interim, sales will be under direct supervision of the president, P. J. Lathrop.

Mr. Scheuermann had been with Cameron since 1926, became sales manager in 1945 and vice president in 1948.

Eugene Ward, service manager, has been appointed assistant sales manager, and John Dain, former supervisor of demonstrators, became service manager.

Nanaimo Pulp Mill Will Cost \$19,000,000

Final cost of Nanaimo Sulphate Pulp, Ltd., Nanaimo, B.C., is expected to exceed \$19,000,000, says H. R. MacMillan, chairman of the parent firm. Expenditures and commitments were \$11,788,707 at Sept. 30, 1949.

Production of unbleached pulp is expected in May. The bleach plant should be operating by November.

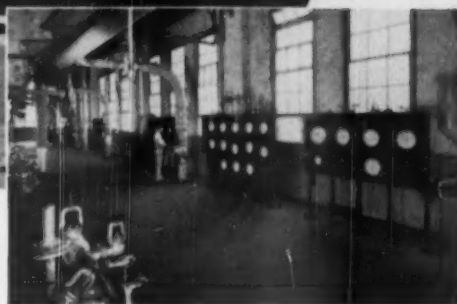
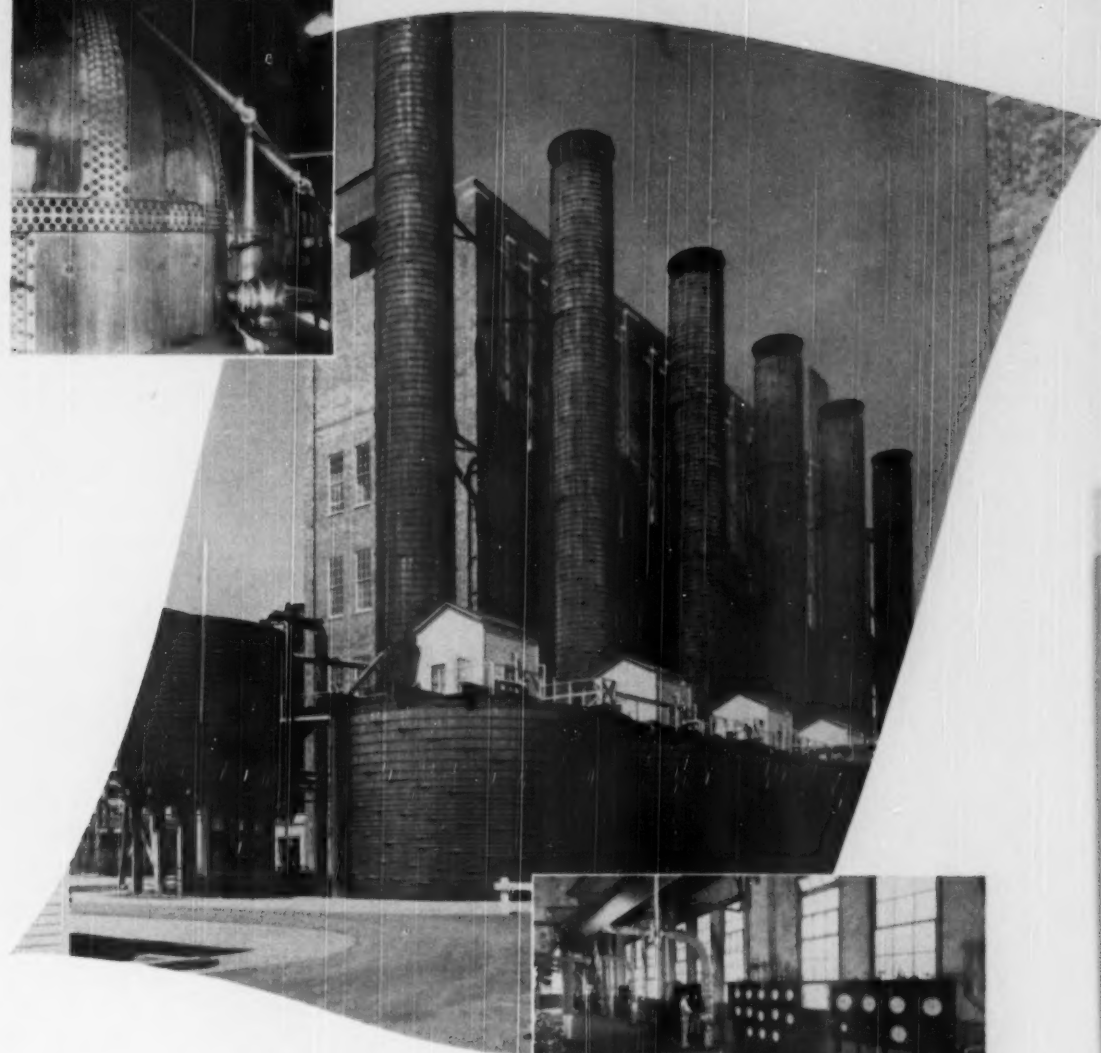
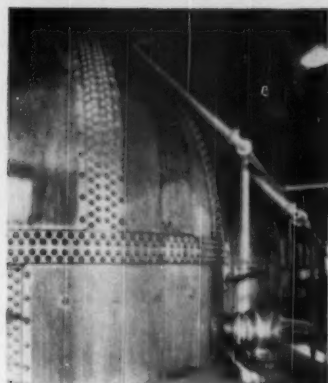
New Record for Paper; 35,000,000 Tons in 1965?

Paper and board production of 5,711,000 tons in the last quarter of 1949 broke all quarterly records, according to the American Paper and Pulp Association. Previous high was the second quarter of 1948—5,617,000 tons.

Estimated annual per capita paper consumption in 1949 was 331 pounds. At the rate indicated by past trend, per capita consumption may rise to 432 pounds by 1965, which would mean, based on population forecasts, consumption of 35,000,000 tons in that year.

N. Y. Luncheon Club Disbands

Although from a fighting nucleus who stuck to the end, the monthly luncheon of New York-and-vicinity allied tradesmen may rise again by a reorganization, it was voted out of existence Feb. 13 as the Allied Industries Luncheon Club.

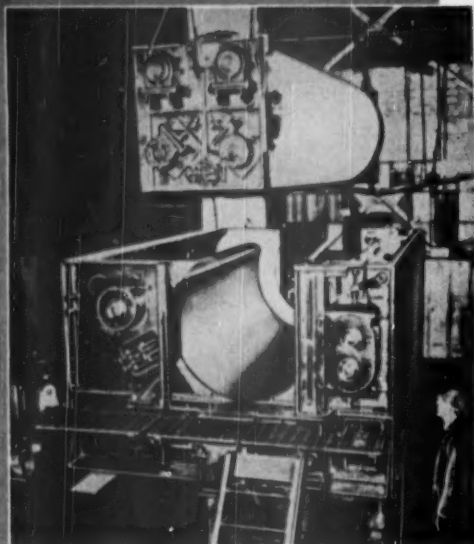


Blow pit stacks are a familiar sight on the skyline at Puget Pulp's Bellingham plant. Behind them is the digester building, where the chips are cooked in acid and steam to become pulp fibers and residual liquors. In this, the heart of the pulping process, control is in large measure automatic, insuring uniformity of the finished product.

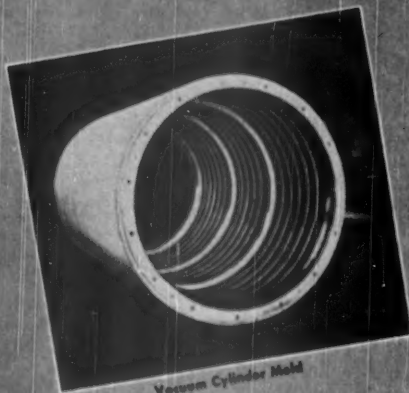
PUGET SOUND
PULP & TIMBER COMPANY
BELLINGHAM • WASHINGTON



Flow Spreader for Cylinder Machines



Stream Flow Vat and Mold



Vacuum Cylinder Mold

Stream-Flow Vat System

— a story of product improvement

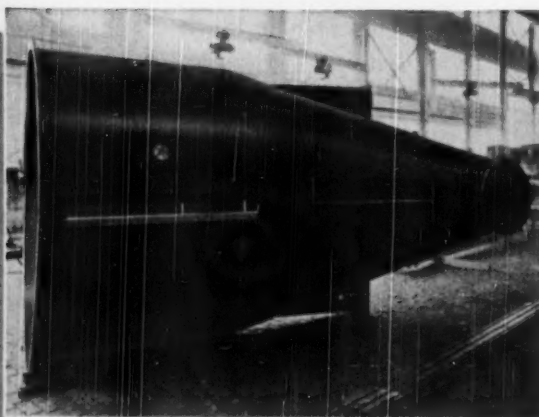
It was just a few years ago that a box with a cylinder mold was considered a vat . . . and what this vat couldn't accomplish was supposedly beyond the realm of Cylinder Machines.

Then came the Goldsmith Stream-Flow Vat System—an individual forming machine designed and built by PuseyJones with the same thought and care as PuseyJones Fourdriniers. Step by step the Stream-Flow Vat System has been improved. Here are some of the outstanding features—standard, but optional—of the latest Stream-Flow design:

- (1) Vacuum Cylinder Mold . . . One of the most important improvements in the history of Cylinder Machines. Formation is greatly improved due to use of vacuum and elimination of spoke disturbance. For single cylinder or multi-cylinder machines.
- (2) Stream Flow Vat . . . Progressive improvements and simplifications have been made, including use of stainless steel instead of bronze for flexible, adjustable vat circle; independent front, bottom and back circle adjustments reading directly on dials; an ingenious toggle-operated bleeding and dumping arrangement.
- (3) Flow Spreader . . . New compact design. Hydraulic nozzle "squeezes" the flow by decreasing area and increasing velocity during spreading.
- (4) Up-Flow Head Box . . . New design assures steady feeding of the vat and permits air to escape.

For better formation, higher speeds, a wider range of stock freenesses proven in operation on a wide variety of grades—from thin cylinder papers to roofing felt—investigate the Stream-Flow Vat System. Talk to PuseyJones engineers about doing the job in several steps—the proof of performance is in the operation. Write us today.

THE PUSEY AND JONES CORPORATION
Established 1848. Builders of Paper-Making Machinery
Wilmington 99, Delaware, U.S.A.



Up-Flow Head Box



MIDDLE WEST

Jennings Becomes President; Seaborne Exec. V.P. of Thilmany

E. H. Jennings, former vice president in charge of sales, has been elected president of Thilmany Pulp & Paper Co., Kaukauna, Wis., succeeding Karl E. Stansbury, who became board chairman.

Charles R. Seaborne, former vice president in charge of manufacturing, was elected to the newly created office of executive vice president.

These three and G. E. McCorison, vice president in charge of sales; E. R. Sutherland, secretary-treasurer; G. J. Stansbury, and R. S. Wertheimer were re-elected directors.

Mr. Jennings, with Thilmany 32 years, was a Northwestern U. graduate and ex-insurance salesman, who became a director in 1928 and later vice president, taking charge of sales in 1940.

Mr. Seaborne came to Kaukauna in 1928 as assistant engineer and was largely responsible for building Mill No. 2. He was away from 1920-24 when he built and managed Paper Converting Corp. at Niagara Falls and in 1926-27 when he designed and built Longview Fibre Co., Longview, Wash. He became general superintendent at Thilmany and later, in 1940, was made a vice president.

Mr. Stansbury came to Thilmany in 1906, working up from accountant to purchasing to sales manager and to the presidency in 1936.

L. M. HANKS, Madison, Wis., has resigned from the board of directors of Nekoosa-Edwards Paper Co. Mr. Hanks had been a director nearly 40 years, and served as president, and later as chairman of the board, of the First National Bank at Madison.

NEIL E. NASH, a vice president of Nekoosa-Edwards Paper Co., who has been with the company since 1924, in various sales and administrative capacities, and CHARLES H. REESE, vice president in charge of manufacturing, who started with Nekoosa-Edwards in 1935 as assistant mill manager, coming from Hammermill Paper Co., have been elected new members of the board of directors of the Wisconsin paper company. They filled vacancies.

F. J. SENSENBRENNER, director of Kimberly-Clark Corp., a company of which he was formerly president and subsequently chairman, underwent a major abdominal operation at a hospital in Madison, Wis., recently. His recovery was favorable. Mr. Sensenbrenner, who is 85, still went regularly to his Kimberly-Clark office in Neenah up to the time of his operation, and was at his desk at 8 a.m., a habit since he started with K-C as a book-keeper many years ago. He is chairman of the U. of Wisconsin regents.



PROMINENT IN MIDWEST NEWS are J. K. VANATTA (left), who has recently become Manager of Purchases for Nekoosa-Edwards Paper Co., Port Edwards, Wis., in addition to his other duties as director of scheduling and planning; J. H. DAVIDSON (right), Chief Engineer of Minnesota and Ontario Paper Co., has moved his headquarters to International Falls, Minn., from where he will now have staff supervision over all Mando engineering activities at International Falls, Port Frances and Kenora, Ont.

J. J. MULCHAEY, resigned Feb. 1 as general superintendent of the Flambeau Paper Company, division of The Kansas City Star, located at Park Falls, Wis., after serving the Park Falls firm in several capacities since 1907. LEONARD KUEHL, Flambeau executive vice president, announces that Mr. Mulchaez will continue in an advisory capacity. In his long paper-making career he has worked in four Wisconsin mills over a span of 57 years.



ARTHUR THURN (left), of Champion Paper & Fibre Co., of Hamilton, O., as this year's Chairman of the Ohio Technical section, has led the group in several interesting meetings and activities, with stream problems, by-products, industry research, etc., as subjects on which experts gave talks. There were 106 at his group's January meeting.

DR. ALLEN ABRAMS (right), Vice Pres. in charge of Research and Development for Marathon Corp., Rothschild, Wis., now has his staff in a modern up-to-date Research Building at that location. Dr. Abrams was a recent guest speaker at an Ohio meeting.

The 15th Annual Meeting of Michigan Supts. and Kalamazoo Valley Tech. Section was biggest in history—406 attended dinner in Kalamazoo Jan. 12. Left to right: Charles Reese, Nekoosa-Edwards, National President of Supts. Assn.; Dr. Jack Wilson, Allis-Chalmers, the main speaker; Ralph Hayward, President of KVP Co., Toastmaster, and W. H. Hathaway of KVP, Chairman of the Michigan Supts.



Smith Heads Wausau Mills; Everest Becomes Chairman

David B. Smith becomes president and general manager of Wausau Paper Mills Co., Brokaw, Wis., succeeding D. Clark Everest.

Mr. Smith entered the industry with Marathon in 1926 and remained with Marathon until 1938, when he became secretary and manager of Ward Paper Co., Merrill, Wis. He later became president of that company and also president of Transo Envelope Co., Chicago, which company is owner of Ward.

Mr. Everest will continue with the company as chairman of the board.

DR. R. A. DIEHM, ex-technical director, became executive vice president and general manager of Ward Paper Co. Carl Luth became secretary and assistant manager.

Turnbull Succeeds Smith at Muskegon

C. W. Smith, after long association with Central Paper Co., Muskegon, Mich., and for the last 15 years its president and general manager, has resigned for reasons of health. John G. Turnbull has been elected to the offices vacated by Mr. Smith. The Muskegon mill is a 100-ton kraft pulp and paper mill.

GEORGE BROWN, formerly in charge of industrial engineering at the Middletown and Lockland, O., plants of Gardner Richardson Co., has been appointed director of a newly created department of industrial engineering at Sutherland Paper Co., Kalamazoo, Mich. Mr. Brown is a graduate mechanical engineer from MIT and was formerly with Marathon and Container Corporation of America.

ROLAND W. RICHARDSON was added to the sales staff to develop and direct the sales promotion and advertising work of The Gardner Board & Carton Co., Middletown, O. ROBERT E. VAN ROSEN of New York City, was named a development engineer. Mr. Richardson joined the Gardner organization in 1932 when it purchased the Lockland mill of The Richardson Co.

BRUCE F. WARNER and EDGAR ZIMMERMAN have been appointed technical service representatives for the paper sales division of Minnesota and Ontario Paper Co., Robert Faegre, sales manager of the division, announces. Both men will have headquarters in Minneapolis. Mr. Warner will service newsprint customers. Mr. Zimmerman will work with users of Mando groundwood papers and will service paper converters who are using increasing amounts of bleached sulfite and kraft papers.

H. T. RANDALL, vice president and director of research and engineering, Champion Paper & Fibre Co., Hamilton, O., and W. R. CRUTE, manager of the Houston Division, Champion Paper & Fibre Co., Pasadena, Tex., visited Pacific Coast mills recently.

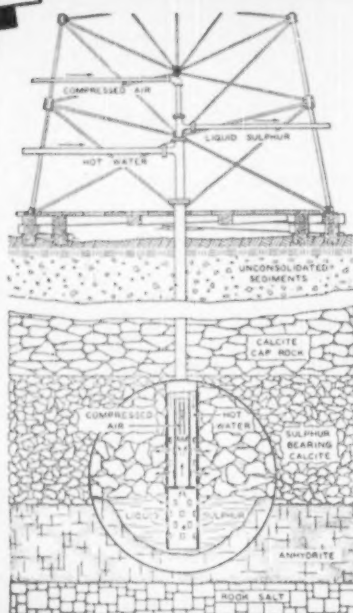
SULPHUR

***Interesting Facts Concerning This Basic Raw Material from the Gulf Coast Region**

*WELL PIPING

The well equipment consists of pipes of various sizes, placed one within the other and extending from the surface into the sulphur deposit. A 10" or an 8" casing extends to and rests on the top of the cap rock. A 6" pipe, inside the casing, passes below it and reaches into the barren anhydrite. It is perforated at two different levels, separated by an annular collar. The upper set of perforations permits the hot water to enter the sulphur formation and the lower set permits the entrance of the molten sulphur to the discharge pipe fitted inside the 6" pipe.

When a well is "steamed" the hot water passes down the annular space inside the 6" pipe and outside the sulphur pipe and flows through the upper set of perforations into the porous formation. The entire mass through which the hot water circulates is raised to a temperature above the melting point of sulphur. The liquid sulphur being heavier than water, makes its way downward to form a pool and displaces water around the foot of the well, and rises in the well column through the lower perforations into a 3" pipe which is the sulphur discharge pipe. Compressed air released at the bottom of still another pipe fitted inside the 3" pipe rises and mixes with the sulphur column, forming an air lift which raises the liquid sulphur free of water to the surface.

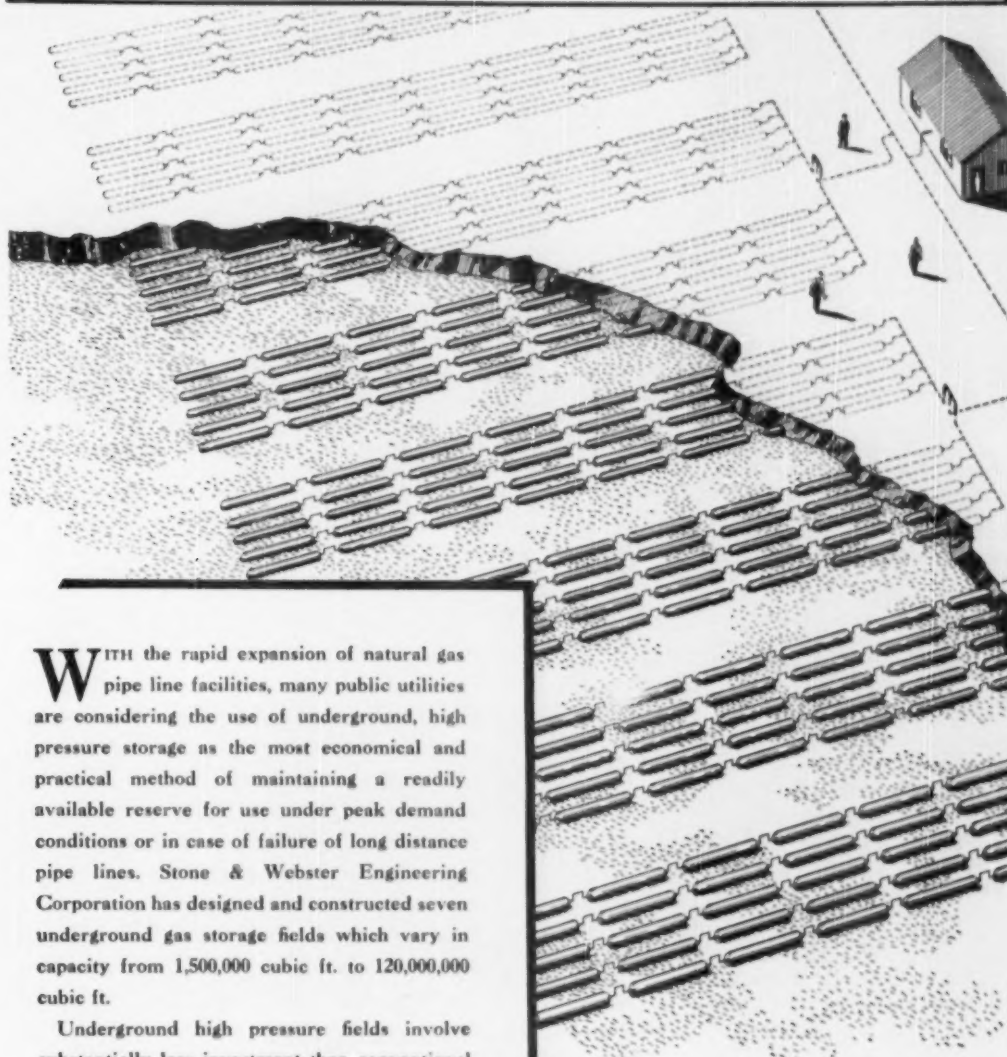


Loading operations at one of the huge vats of Sulphur at our Newgulf, Texas mine. Such mountains of Sulphur are constantly being built at our mines, from which shipments are continually made.



TEXAS GULF SULPHUR CO. INC.
 75 East 45th St. New York 17, N. Y.
 Mines: Newgulf and Moss Bluff, Texas

From Nature's Gas Wells to Man Made Storage



WITH the rapid expansion of natural gas pipe line facilities, many public utilities are considering the use of underground, high pressure storage as the most economical and practical method of maintaining a readily available reserve for use under peak demand conditions or in case of failure of long distance pipe lines. Stone & Webster Engineering Corporation has designed and constructed seven underground gas storage fields which vary in capacity from 1,500,000 cubic ft. to 120,000,000 cubic ft.

Underground high pressure fields involve substantially less investment than conventional above-ground gas holders or storage vessels at low pressure constructed for equal capacity.



STONE & WEBSTER ENGINEERING CORPORATION

A SUBSIDIARY OF STONE & WEBSTER, INC.

MANAGER OF POTLATCH MILL

Wilbur at Lewiston; Betts is Chief Engineer

J. Roland Wilbur (right), is the mill manager for the new Potlatch Forests Inc. bleached kraft pulp and paper mill, now being built at Lewiston, Idaho.



Joe Betts, a veteran of the Southern Kraft mills of the South, is the chief engineer of the new mill.

These and others were taking over new duties as work is being pushed forward under top speed under the over-all direction of William P. Davis, the president of the Potlatch integrated sawmills-plywood and pulp industries of Idaho. Mr. Davis

formerly was assistant to Erling Riis, operator v. p. of all I. P. Southern Kraft mills and former chief engineer.

It has been decided the Potlatch mill will bleach its pulp for quality kraft papers. A Rice Barton Fourdrinier machine is ordered; a Combustion Engineering recovery plant, General Electric electrical equipment and various other major equipment has all been ordered. The Inland Empire and Rocky Mountain country Engelmann spruce and balsam fir—used in this process for the first time in history—will be barked hydraulically in ring-type barkers in sawmill and pulp mill—one 72 and one 42 in. barker.

Leftover wood of the other Potlatch operations and wood from logging unsuitable for lumber or plywood will be used in the pulp and paper mill. Foundation work is

now proceeding and plans are to start up operations Dec. 15.

The "shot-in-the-arm" that Potlatch is giving to this part of Idaho with the new mill is noticeable in many activities over a wide area.

Theisinger Heads Lukens Office for All of South

Appointment of Dr. William G. Theisinger as regional manager of sales for Lukens Steel Co., with headquarters in Houston, Texas, was announced today by J. Frederic Wiese, vice president in charge of sales. Dr. Theisinger has been manager of technical sales, with headquarters in Coatesville, Pa., for four years. Dr. Theisinger will supervise Lukens district sales offices and representatives in 12 Southern states, from South Carolina to California.

FT. FRANCES IMPROVES NO. 6

More economical operation and diversification, plus higher quality of product, are the result of the modernization of No. 6 paper machine carried out in recent months at the Fort Frances, Ont., mill of Ontario-Minnesota Pulp & Paper Co.

A similar modernization project was effected earlier in the year on No. 4 paper machine of M & O's International Falls, Minn., mill, just across the U. S. Canadian border from Fort Frances.

The old No. 6 at Fort Frances was one of two original units installed in 1914. The rebuilt machine features the latest type sectional electric drive which incorporates nine electric motors, with a master control panel.

Originally, the machine had an American Ball reciprocating steam engine with belt drive. The new drive gives the machine a speed range of from 200 to 1,000 feet per minute, making it possible to produce any weight of paper from 32 to 70 lb. basis.

Commencing at the wet end of the machine, the Bird screens were raised and a new headbox installed. The table portion of the Fourdrinier was replaced by a removable section, making wire changes easier and faster. The length of the wire is 400½ inches from breast roll to couch roll. A new shake was installed, also a new suction press and a new three-roll reversing suction second press. The third press has been replaced by a new smoothing press.

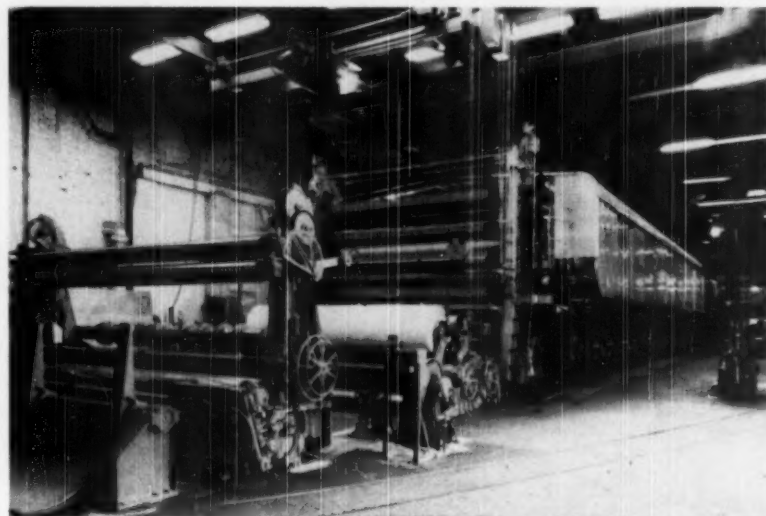
To permit higher speeds six new dryer cylinders were added to the dryer section, making 34 dryers altogether. No change was made in the calender stock, but a new Pope-type reel was installed, as well as a new 3,000-foot per minute

Cameron winder, equipped with an electric regenerative tension drive. The device is designed to save some power used in the winding process.

The winder is equipped with a Bagley & Sewall roll unloader, a large curved pan upon which the roll is deposited after winding. The pan lowers the roll to the floor. Before remodeling, this was accomplished with a crane and leather slings.

An important feature of the modernization was the installation of an aluminum

hood over the paper machine by Ross Engineering. This hood, one of the newest types to be built in Canada, is constructed of insulated aluminum panels with aluminum or steel structural supports. In addition to their light weight which permits the hood to be supported entirely on the machine frame, these structures provide other operating advantages, since most of them have sliding side curtains hung on trolleys and can be moved along horizontally.



ALUMINUM HOOD WITH SLIDING SIDE CURTAINS and so light in weight it can be supported entirely on machine frame is shown in this photograph of modernized No. 6 machine at ONTARIO-MINNESOTA PULP & PAPER CO., Fort Frances, Ont. This is one of the newest type Ross Engineering Corp. hood which was first observed by a PULP & PAPER editor in one of the Three Rivers, Que., mills over a year and a half ago. With this type hood an entire half of either side of machine can be moved up at one time to allow quick access to any parts. In foreground is new Pope reel, new 3,000 FPM Cameron winder with regenerative tension drive and a Bagley & Sewall roll unloader.

THE PAPER INDUSTRY TELLS OF REMARKABLE RESULTS FROM C-B SYSTEM

"The C-B System has repaid its cost several times over during the past year in production increases. It affords better quality of paper because of high and uniform heat transfer rates and there are definite fuel savings from the return of condensate at higher temperatures."

"Our paper making is now 17½% faster; our start-up time is now 10 to 15 minutes instead of 2 to 3 hours."

"We have less waste from poor drying."

"Our fuel savings are considerable."

"We are now getting a dryer and harder corrugated board at higher speeds with the Cochrane C-B System."

"We increased the speed of both .030 and single wall and all grades of double wall in excess of 100 lineal ft. per min. over our former production."

"Our output of double wall board was increased 61%."

"The units are used in connection with the drying system that we have on two of our paper machines, they being installed on the first wet end section of each machine. After conducting experimental work with the first unit which showed us that we were able to obtain better drying and which also helped us to obtain full speed on Monday mornings much sooner than previously, we purchased and installed the second unit. The better drying permits faster operating speeds with resultant savings. To date both units have fulfilled all our expectations and we have had practically no maintenance on either one."

"Faster operation of corrugating machines is made possible by better drainage of drying plates which keeps them hotter. Our cost of fuel is materially reduced by the hotter return to the boiler."

"We recovered 12% of condensate."

"We saved 20% on fuel costs."

"Our boiler is operating more efficiently and there has been a saving in fuel."

"The quality of our paper is greatly improved because of better and faster drying."

March 1950

To tell you all about the C-B would take a book

... so we've written the book



about
this method of
increasing production,
improving quality, and
saving fuel through
condensate drainage
control... and we'd
like to send you a copy.
Just use the coupon.

COCHRANE CORPORATION
3130 N. 17th Street, Philadelphia 32, Pa.

I would like to know more about the
C-B System of Condensate Drainage Control.
Send me a copy of Publication 3250.

Name _____
Firm _____
Address _____
City _____ State _____



NORTHEAST

CLYDE B. MORGAN, President of Eastern Co.-p., with mills at Bangor and Lincoln, Maine, has become President of Royal Luce Paper Works of Brooklyn, N. Y., with acquisition of that converter by Eastern. Expansion of Royal's household and restaurant paper lace products is expected.



Hunter Named Manager; Other Diamond Promotions

Donald A. Hunter has been appointed resident manager of Diamond Match Co.'s pulp mill at Ogdensburg, N. Y., according to J. O. Julson, manager of the company's pulp and paper division.

Mr. Julson also announced appointments of Karl L. Pingrey, as general superintendent of the Ogdensburg mill, and of John C. Benny as assistant technical director of the division, which also operates a paper mill in Plattsburgh, N. Y.

Mr. Hunter has been superintendent of operations at Ogdensburg for five years. He joined Diamond in 1933 after five years with International Paper Co.

Mr. Pingrey has been with the company since 1936. Before entering the Army in 1943 he served as technical adviser and economic analyst in the pulp and paper unit of the U. S. Department of Commerce.

Mr. Benny had broad experience in technical capacities for a number of Canadian companies before joining Diamond.

LAYTON J. HILL, formerly production manager with the Eberhard Faber Pencil Company in New York, has joined the paper manufacturing division of Brown Company at Berlin, N. H. Since being graduated from the University of Alabama in 1934, Mr. Hill has been in industrial engineering with various companies.

JOHN D. ZINK has been elected to the board of directors of Hammermill Paper Co., Erie, Pa. He succeeds Harrison R. Baldwin, former Hammermill sales manager, now retired. Mr. Zink joined Hammermill in 1946 and in June 1948, was made a Hammermill vice president and director of merchandising. He is former president of the Writing Paper Manufacturers Association.

JOSEPH MAZER of the Hudson Pulp and Paper Co. of New York, and **FREDRIC R. MANN** of the Seaboard Container Corp. of Philadelphia, have agreed to serve as national chairmen of the paper division of the 1950 United Jewish Appeal.

F. J. McCOURT has taken over duties as sulfite superintendent at the Hudson River mill of International Paper at Corinth, N. Y. He was technical control superintendent.

WILLIAM R. MacDONALD has been appointed maintenance engineer with the power and steam divisions of Brown Co., Berlin, N. H. He was formerly port engineer for States Marine Corp., New York. In 1944 he was shipbuilding inspector for the U. S. Army Transport Service, Brooklyn, and later joined the consulting engineering firm of Thomas L. Stanly, Sr., as port engineer.

ERNEST H. PORTER has become chief draftsman for Brown Co., Berlin, N. H. He was recently with **ALVIN H. JOHNSON**, pulp and paper mill engineer of New York, in charge of kraft pulp mill and paper machine construction. A graduate of MIT, he served in the war as chief structural engineer at the U. S. Naval Base, Kingston, Jamaica, and later entered the Marine Corps, rising to rank of colonel. Returning to civilian life, he joined the **HARDY S. FERGUSON** organization and was later plant engineer for the Mechanicville, N. Y., mill of West Virginia Pulp & Paper Company.

L. D. FRISBIE, formerly general superintendent of the Westfield River Paper Co., Inc., with mills at Lee and Russell, Mass., and The Glassine Paper Co., with mills at West Conshohocken and Manayunk, Penn., has been elected vice president in charge of manufacturing of all plants of the these companies, according to Paul F. Moore, president.

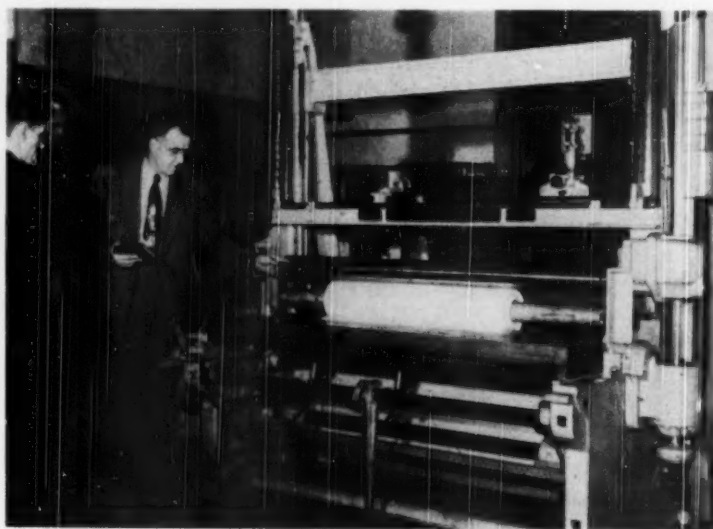


ELMO B. STEVENS (left), newly appointed Manager of Personnel, at the Winslow and Madison, Maine, mills of Hollingsworth & Whitney Co., who succeeded Arthur E. Winslow, whose retirement was announced here last month. Mr. Stevens had been Mr. Winslow's assistant.

HAROLD G. INGRAHAM (right), formerly Chief Engineer for the Bird Machine Co., South Walpole, Mass., has joined Chas. T. Main, Inc. of Boston in their Pulp and Paper Mill Division. Mr. Ingraham was formerly with the late V. D. Simons, consulting engineer of Chicago.

JOHN B. VENTURINI, representative for Cameron Machine Co., Brooklyn, N. Y., died at his home in Dumont, N. J., Feb. 4. He was 66, and had been with Cameron since 1914. He was Cameron representative in Canada and New England over 30 years. Since 1946 he had handled special sales in the New York metropolitan and New Jersey area.

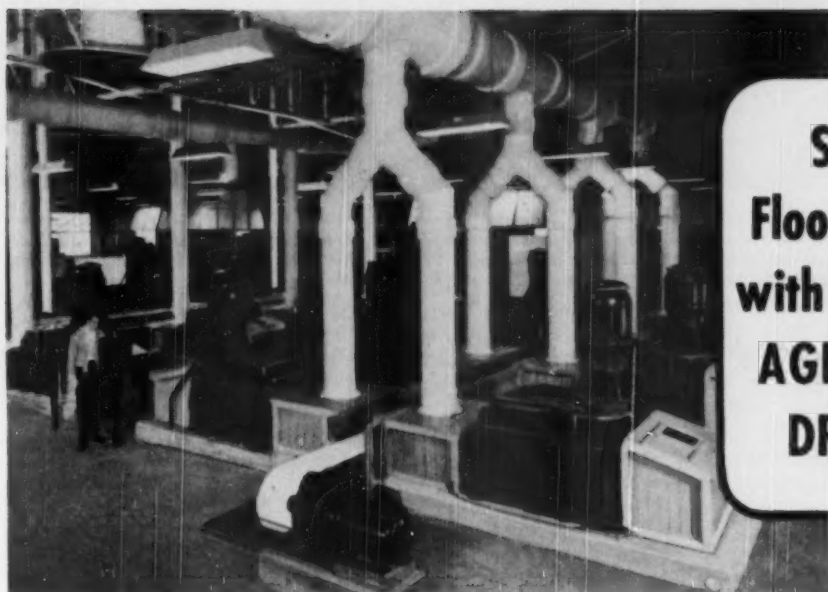
B. I. REIDER has retired from the presidency of Victoria Paper Mills Co., Fulton, N. Y. He is now at home at 3306 Canterbury Road, Baltimore, Md.



Paper Week Delegates See New Camerons

In the picture above Tom Carter, chief engineer for Cameron Machine Co., Brooklyn, is showing one of the new Cameron machines to two of scores of mill men visiting the two Brooklyn plants during the New York Paper Week which wound up its sessions Feb. 23.

Under guidance of Palmer Lathrop, president, and others of the Cameron staff, mill men saw the newest line of Camachine. The unit shown in the picture is the Camachine Commander Type 10, a high-speed slitter and rewinder. Built for web speeds up to 2,000 fpm, it is claimed to be a highly versatile machine for plain, waxed, gummed, coated papers, etc. It is equipped with "Pneucut" slitting units. A single control valve sets and maintains uniform pneumatic pressure on the entire line of cutter wheels, regardless of variation in diameters. These "Pneucut" slitters are said to eliminate the need for separate cutter adjustment and assure clean slitting through long runs. Gearing is completely enclosed and runs in a bath of oil. Main drive shaft outboard bearing support is an integral unit of the main frame, assuring exact alignment. The Commander is built in two models, one with maximum rewind capacity of 40 inches and the other, 30-inch.



SAVE Floor Space with Vertical AGITATOR DRIVES

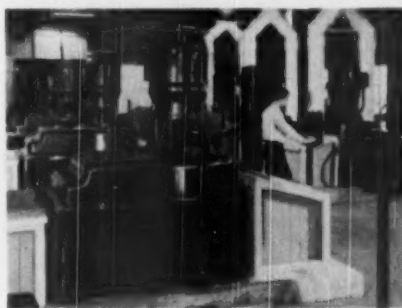
A portion of the 26 Pacific-Western DV-60 vertical agitator drives in use at the new Weyerhaeuser kraft mill at Longview, Wash., is shown in this photograph of the bleach plant. In foreground is a Pacific-Western drive for the conveyors.

Vertical agitator drives like the Pacific-Western DV-60 illustrated above have enabled such progressive pulp producers as Weyerhaeuser to achieve a maximum amount of uncluttered floor space in new bleach plants. Today pulp mill designers can determine floor space requirements by the tank dimensions underneath rather than by the size and shape of the driving unit. The space-wasting problem of the old-style, right angle agitator drives with motors mounted on floor bedplates has been solved by installation of compact Pacific-Western DV-60 vertical agitator drives with motors mounted on top.

Achieving better use of floor space isn't the only reason why more mills are specifying Pacific-Western vertical agitator drives. Costs are important too, and the vertical drives cost less than the old, right angle agitator drives. Precision cut and heat treated helical gears assure both a continuing economy in use and a lack of maintenance. Dual oil pumping systems in each unit provide proper lubrication with no danger of oil seepage.

Through service to the paper industry for more than fifty years, Pacific-Western has developed drives for the special needs of many customers. Ranging from 48 to 70 to 1 ratios with 30 to 150 h.p. motors turning at speeds from 720 to 1800 r.p.m., Pacific-Western vertical agitator drives

are adaptable to a wide variety of uses. If you have a problem in power transmission, call in Pacific-Western. Trained application engineers can assist you in realizing greater benefits from your present equipment or by designing and building new units to make your plant run more efficiently.



Write, wire or phone your nearest Pacific-Western office
Plants at SEATTLE, SAN FRANCISCO and LOS ANGELES
Sales Representatives at PORTLAND, DENVER, HOUSTON
and VANCOUVER, B. C.

**GOOD GEARS
FOR OVER 50 YEARS**



PACIFIC GEAR
& TOOL WORKS

WESTERN
GEAR WORKS

PACIFIC-WESTERN

4971

GEAR PRODUCTS



Pulp mills of the United States and Canada in North America consume more than 30 million cords of wood each year. Perpetuating this supply is the responsibility and the prime concern of management men of the pulp and paper industry. This represents a vast investment in machinery, labor and wood. This section of PULP & PAPER is devoted to ways and means of developing more efficient methods of forest management and wood production.

WOOD EVALUATION BY PHOTO

By Dr. Truman A. Pascoe

Technical Director, Nekoosa-Edwards Paper Co., Port Edwards, Wis.

Nepco's activities in the field of wood evaluation began about 25 years ago. At that time the emphasis was on evaluation of different species of wood for pulping characteristics and qualities. This work was carried out largely in an experimental pulping set-up but to some extent, under mill scale conditions.

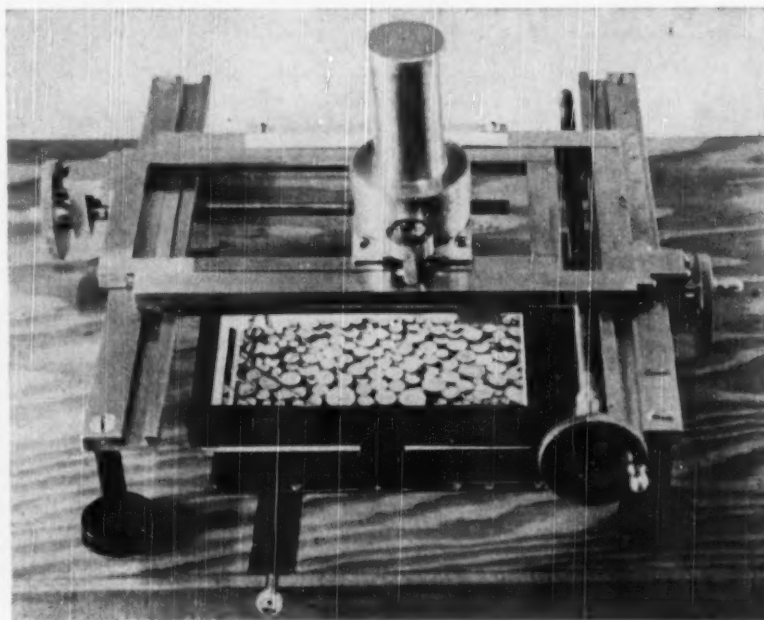
In the early 1930's, wood evaluation again became an active question. At this time the stress was on demonstrating the economic value of purchasing only peeled wood when pulpwood had to be hauled beyond certain distances. This work was planned and executed to give reliable figures on the weight and volume of bark per cord of wood.

The technique used was the standard water displacement method for measurement of volume of individual sticks and the cords were measured by the single cord rack. As a result of these studies on the common wood species being used, Nepco adopted the policy of purchasing only peeled wood until World War II made such purchasing impossible.

In 1937 Nepco became interested in the question of the actual wood being purchased in conventional cords of various species. This study was divided up in order to not only distinguish results as to species but as to geographical areas and individual producers. The technique first employed to determine solid wood content per cord was the water volume displacement method and cord rack. Later the measurement of individual sticks in the cord rack to calculate their volumes was used.

A later development involved the measurement of the exposed top wood of gondola loads of pulpwood in place of single racked cords. In this technique randomly chosen sticks were measured as to diameter and length, the total number of sticks were counted and the solid wood content per cord computed from this larger wood volume.

All of these so-called physical evalua-



HERE IS SMALL MODEL showing essential features of the NEPCO photographic apparatus used for evaluation of pulpwood in piles, as described in this article by Dr. Truman A. Pascoe.

tion methods, although yielding results that were quite reliable, required prohibitive amounts of labor to evaluate large quantities of wood.

An entirely new approach was made to this problem that ultimately resulted in the development of the Nepco photographic method and apparatus for the evaluation of pulpwood in piles. This method and apparatus has subsequently been patented. The apparatus described therein was the original homemade device and the one still in use.

Description of Measuring Method

C. H. Keepers, wood technologist for Nekoosa-

Edwards, has described the photographic process as a simple method of measuring the proportion of wood-area to air-space on a number of equi-spaced parallel lines across the face of a pile of wood. In order to avoid any delays in wood movement, a photograph showing a side elevation of a carload or similar lot is obtained. For this purpose we use a Kodak, 620, although any suitable camera would do. The photograph is enlarged to a five-by-seven size from the original and placed in the frame of a specially constructed instrument designed to obtain the necessary measurements.

A brief description of the instrument and its operation by Mr. Keepers follows:

Briefly, the instrument consists of an objective for scanning the photograph, attached to two operating screws by manipulating one screw, the objective is moved progressively over

Pulpwood Production Pays Off

with **INTERNATIONAL CRAWLERS**

*Tune in
James Melton and
"Harvest of
Stars,"—NBC,
Sunday afternoons.*

For really rigid economy, Internationals just can't be beat. Take a tour of the pulpwood trails and you'll find International Crawlers pulling huge loads of pulpwood logs from the depths of the woods. Whether the going is muddy or dry, smooth or rough, it makes little difference to these ground-gripping tractors. They've got the pull to come through with the big loads in fast time. And owner after owner will tell you their

fuel and maintenance costs stay down where they want 'em.

If you're not already an International crawler tractor user, it will pay you to visit your nearest International Industrial Power Distributor. He will show you plenty of reasons why the right size International tractor is a real money maker in pulpwood operations. The product is right and so is the price. The payoff is in profit-building production.

INTERNATIONAL HARVESTER COMPANY • Chicago



**Standardize
on Power
that Pays**

**CRAWLER TRACTORS
WHEEL TRACTORS
DIESEL ENGINES
POWER UNITS**



INTERNATIONAL INDUSTRIAL POWER

areas of the photograph which disclose air-space, and by movement of the other screw, over areas which disclose wood-area. When the objective is being moved across wood-area by the second operating screw, the movement is registered on scale I, and when the objective is being moved across air-space, by the other operating member, this latter movement is registered on both scales I and II. Scale I thus gives a cumulative reading, while scale II indicates only the reading over air-space. The ratio of the air-space reading on this scale to the cumulative reading from scale I is the ratio of actual air-space to wood-area in the total linear distance traversed. A simple check of the reading may be obtained by reversing the procedure and measuring the wood, the sum of this reading and the air-space reading should be equal to the total linear distance.

When this operation is completed, the process is repeated on a number of other parallel lines. From the readings obtained a mean ratio of wood may be determined.

The instrument is provided with a third screw operated to traverse the frame at right angles to the scanning path. Scale III is provided to indicate the distance of this movement and is desirable in that it allows for reading on equi-spaced lines and thus eliminates a choice of lines by the operator. This scale also allows re-checking or relocation of previously measured lines.

In comparing one stack of wood with another, no additional measurements are necessary. The readings are translated by simple arithmetic into per cent of wood-area or air-space, and from these the solid wood content per cord is readily calculated. If the actual solid content in a stack is desired, the over-all dimensions of the pile must be obtained. This may be done in the regular scaling manner, or measuring rods may be included in the picture and the dimensions obtained from the photograph itself.

We have often used the latter method to determine the total stacked volume of piles too irregular to be accurately measured by other means.

This is accomplished in the following manner: A measuring rod is held at right angles to the base line of the pile and is included in the photograph. By using a planimeter, an instrument designed to determine the area of any

plane figure by passing a tracer around its outer boundary, the area of the side elevation of the wood depicted by the photograph is obtained. A ruler is used to measure the length of the base line and this divided by the total area gives the average height of the figure. By the use of dividers this height is laid off on the pictured measuring rod, showing the average height of the actual pile. Thus with the known length of the pile and of the bolts, the total volume is readily computed.

With known stack dimensions, the actual amount of solid wood can be determined by multiplying the total area of the face of the pile by the per cent of actual wood-area.

For routine scaling the photographs of the gondola loads of pulpwood can be measured with an accurate rule after obtaining the photographic reduction factor from the scale photographed against the pile. An alternative method is to trace the area of the exposed wood on the gondola with a planimeter which gives the area of the face of the pile directly, from which it is easy to derive the cordage equivalent.

This photographic method allows the evaluation at small cost of 15-20 thousand cords of wood per year.

Contemplated improvements in the equipment include facilities for reading the small photographic negatives directly, without enlarging and printing and the possibility of photo-electric scanning of either photographs or negatives.

The advantages we believe to exist in using the photographic system of pulpwood evaluation:

1. The procedure is fast, inexpensive and reasonably accurate.
2. All or as many shipments as desired can be evaluated.
3. Operation of the measuring device requires but little experience.
4. Calculations are reduced to simple arithmetic.
5. All individual measurements of piles or bolts and possible resulting errors are eliminated.
6. A photographic record of the subject is available for future reference.
7. The procedure offers excellent opportunities for purchasing wood on a sound, scientific basis.

COLORADO MILL PROPOSAL

Forest Service officials have indicated to **PULP & PAPER** that no written bids have yet been received for the 4,500,000 cords of pulpwood on the Western Slope of Colorado which is to be auctioned at 2 p.m., Wednesday, March 29, in the office of the Chief Forester of the U. S. Lyle Watt, Washington, D.C.

However, two groups have indicated they will bid:

1. T. W. Schomberg, lumberman, 1856 Colorado Blvd., Denver, heads a Colorado group which wants to make newsprint and pulp to ship.

2. Preston Walker, manager of the Grand Junction, Colo., Sentinel, heads a Rocky Mountain group who want to make newsprint. Morris Mitchell, New York engineer, is affiliated with this group.

The Forest Service suggests the mill should be built on the Colorado, near or below Glenwood Springs, Colo. It requires that a 200-ton mill must be completed by April 30, 1953.

Bids may be made orally or in writing. Each bidder must deposit \$25,000 to be applied to the contract or retained as liquidated damages. In the case of post-war auctions or attempted auctions of Alaska timber, the Forest Service postponed the date of sale several times in

instances when no bids were offered in time.

More than two-thirds of the Colorado timber is bark beetle-killed Engelmann spruce. The service has been faced for several years with a huge salvage problem. Much of the timber is at 8,000-11,000 feet in snow country or rolling plateaus and in mountains.

Bidders are offered Forest Service aerial inspection trips to view the timber: 3,325,000 cords of beetle-killed spruce, and 1,240,000 cords of both live and insect-killed spruce, lodgepole pine and alpine fir. Most of the spruce is in White River National Forest; smaller areas are in Grand Mesa, Uncompahgre and Routt National Forests.

EMMETT B. HURST, in charge of the woodlands div., Consolidated Water Power & Paper Co., Wisconsin Rapids, was scheduled for a state-wide New York radio network appearance, Feb. 24, from the New York State College of Forestry.

R. R. EDGAR, of William Bonifas Lumber Co., Marquette, Mich., has been elected chairman of Lakes States technical committee of the American Pulpwood Association in 1950. **W. H. HILDEBRAND**, Escanaba (Mich.) Paper Co., will serve as vice chairman.

MEETINGS

Intermountain Logging Congress—
Spokane, Wash. Mar. 29-31
So. Pine Ass'n Machinery Show—
New Orleans Apr. 19-20
Forest Research Society Industry
Show—Armory, Portland, Ore.
June 25-29

Fair Labor Standards Act Effects on Pulpwood Output

Effects of recent changes to the fair labor standards act on the procurement of pulpwood in Northeast U. S. held attention of more than 50 representatives at Portland, Maine, Jan. 11-12 at a joint meeting of the Northeastern Technical Committee of the American Pulpwood Association and the Northeast Pulpwood Research Center.

A major portion of the workers in the pulpwood industry are already earning wages in excess of the 75c per hour minimum. In some cases, however, the manner in which the new amendments to the wage and hour act affects a few workers in each pulpwood operation may require adjustments that will affect many more workers than those to which the changes are supposed to apply.

New Lorain Literature On Log Loading

"Keep the Logs Rolling with Lorains" is the title of a new 2-color folder just produced by The Thew Shovel Co., Lorain, O., available on request. It contains many illustrations of different types of log loading and lumber operations using mobile Lorain cranes. Special emphasis is put on the use of Rubber-Tire Moto-Cranes as a method of speeding up loading, thereby cutting handling cost. Various sizes of "shows" are illustrated, one of which pictures the world's largest rubber-tire mounted crane—the Lorain MC820—that is able to handle logs up to 52,000 pounds in weight.

Weyerhaeuser Makes Additions At New Springfield Mill

In a gradual enlarging process, Weyerhaeuser Timber Co. is planning to make additions at its new Springfield, Ore., kraft container board mill which it is anticipated will boost the capacity from 150 tons per day to approximately 220 tons.

Two additional digesters are planned. There are now three Blaw-Knox digesters of 3250 cu. ft. capacity. A small Babcock & Wilcox recovery furnace is being added to the present combustion engineering recovery furnace. Some additional dryers will be installed on the Rice-Barton Four-drinier (164-inch wire) machine which has five dryer sections.

Marvin Jones is mill manager and William Pittam is plant engineer.

For a detailed illustrated description of the mill see **PULP & PAPER**, Nov. 1949, issue, page 42.

Lyddon & Co.

*Exporters of
wood pulp to all
world markets*

PULP
PAPER

*Parsons and
Whittemore*

Paper Exporters

Wood Pulp

• A World-wide Organization •

10 EAST 40TH STREET, NEW YORK 16, N. Y.

LONDON
SOUSSE

PARIS
MONTREAL

ZURICH
BUENOS AIRES

STOCKHOLM

OSLO
SAO PAULO

ANOTHER PULPBOARD PLANT

Uses Douglas Fir Waste as Material

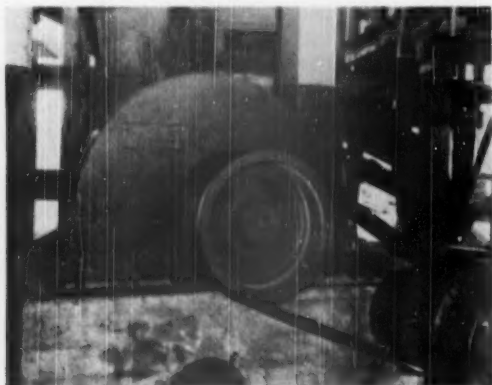
An important addition to the wood pulp and board industry of the Pacific Coast, a growing industry making use of formerly wasted mill left-overs, is Forest Fiber Products Co., in Forest Grove, Ore. Another offshoot of the pioneer Stimson lumber companies of the Far West, which for some 60 years has an important (and at times, one of the large) forest industries of the Pacific Coast. Its antecedents trace back to the Stimson companies of Michigan in the latter 19th century. The Oregon offshoot was established by the Seattle lumberman, C. W. Stimson, operating a lumber mill at Forest Grove for many years.

Bark-free mill waste from this lumber mill, 100% Douglas fir at present, is the raw material for a product named "Forest Hard Board" used for construction and fabrication. The new plant, which started up in late 1949, was gradually building up to 1,000,000 sq. ft. production per week on an 1/8-inch basis, a goal set for about mid-1950. The plant is the largest producer of so-called hardboard in the Douglas fir region. Softboard insulating board plants have also sprung up in that area, as we have previously reported, and are also using previously wasted or burned wood.

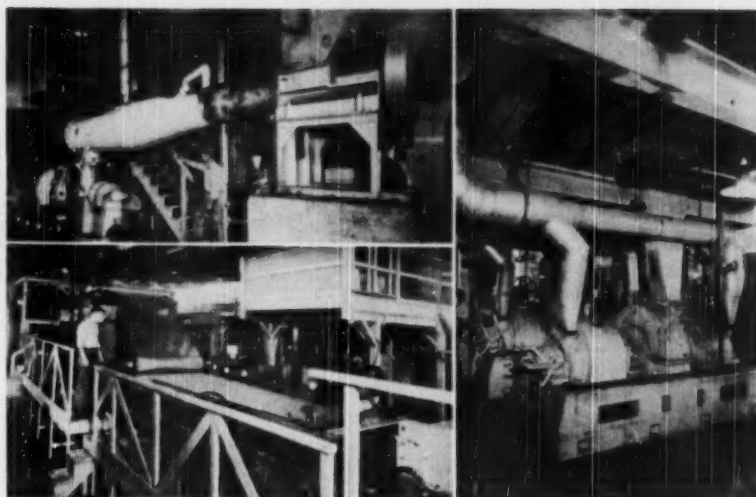
At Forest Grove, lumber mill waste goes through a Sumner Iron Works 66-inch six-knife chipper, right hand, arranged for V-belt drive and powered by a 150 hp. motor. Endless rubber belting takes the chips to storage above the fiber board plant.

Screened chips are gravity-fed to an Asplund specially built Defibrator supplied by American Defibrator, Inc., New York City. In the Asplund, under a maximum saturated steam pressure of 180 lbs. per square inch, the chips are reduced to a fibrous mass.

Next step is the mechanical beating of the fibers to desired fineness through the use of two Bauer Bros. pulpers. These Bauer machines are of a 150 hp. rating.



AT LEFT—This 66-inch, 6-knife Sumner Iron Works chipper, arranged for V-belt drive and powered by 150 h.p. motor is important part of equipment at Forest Grove mill.



EQUIPMENT AT NEW FOREST FIBER PRODUCTS CO. Plant.

Top left: ASPLUND DEFIBRATOR. Chips from overhead storage are reduced to fiber under 180 psi. steam pressure.

Lower left: DOWNINGTOWN MFG. CO. FOURDRINIER.

Right: Two BAUER PULPERS of 150 hp. rating which receive from Asplund and mechanically beat it to fineness for hardwood forming.

A "slurry," formed by mixing the fibers with water, is held in four large stock chests below the Bauer pulpers. Here is introduced sizing and, depending on specifications of the stock being run and the end product, phenolic resins from zero up to 8%.

The slurry is pumped back to the main floor, passed through a consistency regulator, and spread onto the continuously moving screen of a Downingtown Manufacturing Co. Fourdrinier. As the fibrous sheet leaves the Fourdrinier, it is cut into 16-foot lengths by an automatic cutoff saw built by Helser Machine & Marine Works, Inc., of Portland, Ore.

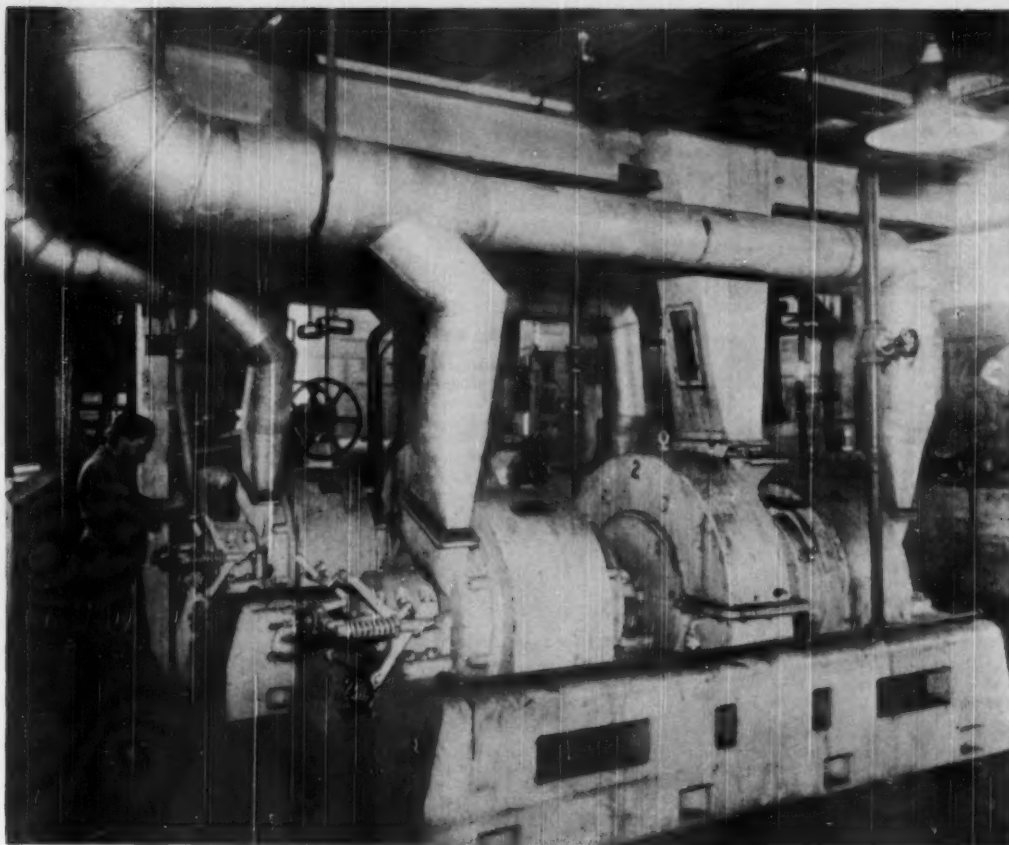
Ten of these wetlaps are fed into an R. D. Wood Co. hydraulic press. Pressure on the 4' x 16' plates varies up to 5,000 lbs. per square inch with heat varying up to 225 lbs. of steam. Time in the press varies from 10 to 20 minutes, depending on size, hardness and density specifications of the particular run. Floor space planning allows for an ultimate 20 plates.

The hard board is unloaded onto an elevator, and lowered to the level of the humidifying kilns. Here 8 to 10% moisture is returned to the board for stability. This stage requires 2 to 4 hours.

Lastly the boards are edge and end trimmed on an Irvington Machine Works-built machine followed by grading, wrapping and labeling.

Top personnel of Forest Fiber Products Co. include Harold A. Miller, president; R. W. Repogle, vice president; G. T. Hanson, treasurer; F. L. Hoskins, secretary; O. W. Frost, general superintendent; Clyde Mason, operating superintendent; and Eugene Tower, technical director.

Mr. Frost had previously been in charge of the U. S. Gypsum Co.'s research division at Chicago, and prior to that was mill superintendent of the Wood Conversion Co. at Cloquet, Minn. Mr. Mason for twelve years was in the hard board and insulating board plants of U. S. Gypsum Co., and with the Wood Conversion Co. for eight years.



Bauer PULPERS

USED FOR REFINING STOCK AT FOREST FIBER PRODUCTS CO.

WHEN you read the interesting story of Forest Fiber Products Co., Forest Grove, Ore., in this issue, you will realize the important part played by Bauer pulping engines in the refining of Asplund fiber for producing wall-board.

Bauer Pulpers are widely used in pulp, paper, and board mills throughout the world. The double revolving discs produce long, pliable, free fibers. An idea of the versatility of these machines can be gained from the following list of materials refined for a large variety of products:

Raw, seasoned, and cooked chips from soft and hard woods for insulating board, wall-board, hard board, corrugated board, plastics, and roofing felt.

Groundwood rejects for newsprint, special wrappers, and boards.

Sulphite and soda pulps for tissue, book, and other grades of paper.

Kraft knoter and screen rejects for inclusion in kraft board and kraft bag papers.

Sulphite knoter and screen rejects for newsprint, boards, and specialties.

Waste papers of all kinds (including wet-strength) for paper board, auto panel board, wall-board filler, etc.

Bagasse, licorice root, bamboo, straw, and many agricultural residues for insulating and building boards, special papers, paper boards, felt, etc.

Complete mechanical and processing information will be gladly furnished upon request. Anyone with special pulping and refining problems is invited to take advantage of our laboratory and testing facilities.

THE
BAUER BROS.
COMPANY
SPRINGFIELD 99, OHIO

CPPA and APPA

(Continued from page 39)

dustry, is more than ever responsible for the Dominion's national economy.

It was this that was making Canada, and chiefly such men as represented by the CPPA membership, watch the U. S., with increasing concern.

Mr. Fowler pointed out that a fine understanding had been built up between eastern and western mills through the coordinating members of the executive committee, and it was inferred that the re-election of Mr. Foley, popular on both coasts of Canada, would do much to continue this effect.

Remarks by Parker and Others

Cola Parker, president of Kimberly-Clark and retiring as APPA president, was a featured speaker who readily admitted to his Canadian brothers that the slump last year had been mainly a mid-summer fear. He invited attention to the fact that this was the first U. S. depression in history which did not run its course, and wondered if psychology was not the answer next time there was industry "fear."

But to add to the buoyant spirit noticeable at the convention, D. W. Ambridge, president of Abitibi, recalled that last year he had let loose a very audible blast at the Canadian industry's lack of research or even interest in it. At that time, he said promising Canadian research men were being lost to higher salaries in the U. S. and stated flatly that this must be reversed and that furthermore the Pulp and Paper Research Institute must boarden its base.

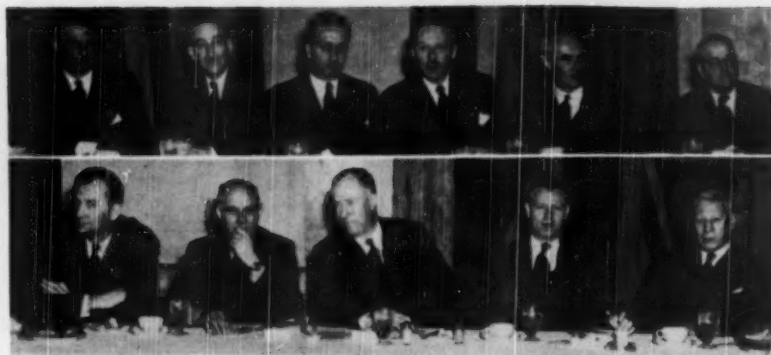
Few industries can report results following plans as quickly as did Mr. Ambridge this year. He was able to introduce, as part of this accomplishment, Dr. Lincoln Theismeyer, a distinguished U. S. research scientist with a long list of honors and of projects which included the atom bomb. Dr. Theismeyer will head research developments of the Institute and he stated significantly that what attracted him was a chance to work on projects involving "a great many products besides just paper, many of them," he was sure, "not even dreamed of now." It was plain to the membership that Mr. Ambridge and his associates had reversed the march across the border with a bang. It was equally plain that Dr. Theismeyer was enthusiastic not only about his new job, and its possibilities, but was taken with Canada. Nobody in the Mount Royal who talked with him could escape the feeling that perhaps Canada had also gained a fine future citizen, too.

Neubrech Forecasts

Over 21 Million Tons in 1950

"Prospects are excellent for an aggregate domestic paper and board production in 1950 of 21 million tons or more," says W. LeRoy Neubrech, chief Pulp and Paper Section, Forest Products Division, U.S. Department of Commerce.

"In 1948, when all records were broken with an output of nearly 22 million tons, it is known that a very substantial quantity went into pipe line inventories," he says. In 1949, production was near or slightly above 20 million tons, according to a preliminary estimate of the Pulp and Paper Section, but there was a large withdrawal from inventories during the first three quarters.



AT CPPA MEETING (L. to R.): Top Row—A. A. SCHMON, President, Ontario Paper Co. Ltd., Thorold, Ont.; C. H. SAGE, President, Spruce Falls Pulp & Paper Co. Ltd., Nipaw, Wis.; A. E. H. FAIR, President, Alliance Paper Mills Limited, Toronto; F. L. MITCHELL, Manager, CPPA, Montreal; A. B. MACLAREN, President, James MacLaren Co. Ltd., Buckingham, P.Q.; J. P. ROLLAND, President, Rolland Paper Co. Ltd., Montreal.

Bottom Row—WENTWORTH BROWN, Vice President in Chg. of Mfg., Brown Co. of U.S., and Brown Corp. of Canada; COLIN MACKAY, President, Canadian Lumbermen's Ass'n, and President, Mackay Lumber Co., St. John, N.B.; W. S. KIDD, President, E. B. Eddy Co., Hull, Que.; GEO. L. CARRUTHERS, President and General Manager, Interlake Tissue Mills Co., Toronto; J. R. S. McLERNON, Director, Dryden Paper Co. Ltd., Montreal.



PHOTOGRAPHED AT CPPA MEET (L. to R.): Top row—PAUL E. COOPER, Chairman Western Branch, and President of Pacific Mills Ltd., Vancouver; WILBERT HOWARD, K. C., Montgomery, McMichael, Common, Howard, Forsyth & Ker, Montreal; COLA G. PARKER, President, APPA and President, Kimberly-Clark Corp., Neenah, Wis.; HAROLD S. FOLEY, re-elected Chairman of Executive Board, CPPA, and President, Powell River Co., Vancouver; R. M. FOWLER, President, CPPA, Montreal; AUBREY CRABTREE, President, Fraser Companies Ltd., Edmonton, N.B.; and M. W. MACKENZIE, Deputy Minister of Trade and Commerce, Ottawa.

Bottom Row—E. W. TINKER, Executive Secretary, APPA, New York; J. S. BATES, Chairman, Board of Directors, Canadian Forestry Ass'n, and Director, Price and Pierce, Ltd., Montreal; D. W. AMBRIDGE, President, Abitibi Pulp and Paper Co. Ltd., Toronto; L. R. THEISMAYER, President, Pulp & Paper Research Corp., Montreal; R. L. WELDON, President, Bathurst Pulp & Paper Co., Montreal Que.; W. EARL ROWE, President, Great Lakes Paper Co. Ltd., Toronto.

Savannah Sets Record

The 5-machine paper mill of Union Bag & Paper Corp., Savannah, Ga., produced 1389 tons of paper and paperboard on Jan. 3, setting a new record for a 24-hour period. The previous record was established Apr. 28, 1948, when 1315 tons were produced. The new record, almost a ton a minute for 24 hours, was more than a ton a minute for the time the machines were actually producing. The machines had 3 hours and 39 minutes down time that date.

Soundview Pulp Builds

New Research and Control Lab

Soundview Pulp Co., Everett, Wash., has awarded a contract to Howard S. Wright Co. of Seattle for construction of a complete new research and technical control laboratory.

The new building will be 81 by 127 ft., of modern design and air conditioned throughout. A considerable area will be devoted to research in pulp products and by-products.

It is to be occupied in the fall.

ROBERT AND COMPANY ASSOCIATES

96 POPLAR STREET

ATLANTA, GEORGIA

Consulting and Design Engineers to the
PAPER AND CHEMICAL INDUSTRIES

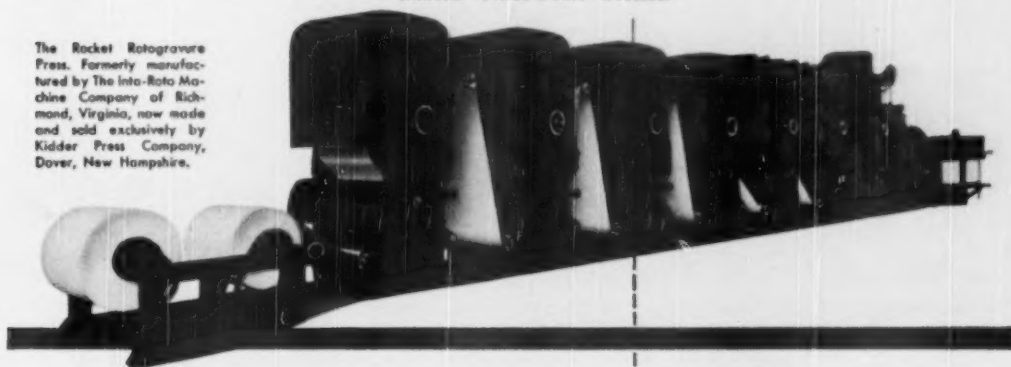
HAROLD R. MURDOCK, Chemical Engineer

PROCESS STUDIES • DESIGN • POWER PLANTS • INDUSTRIAL WASTE DISPOSAL

Now... MULTI-COLOR GRAVURE UNIT PRESSES BY KIDDER!

*Purchase of Inta-Roto
Machine Company's Rocket
Gravure Press Marks Entry
of Kidder into Rotogravure Field.*

The Rocket Rotogravure Press. Formerly manufactured by The Inta-Roto Machine Company of Richmond, Virginia, now made and sold exclusively by Kidder Press Company, Dover, New Hampshire.



ONLY KIDDER CAN OFFER YOU THIS BROAD RANGE OF PRINTING EQUIPMENT

Kidder's "Three Point" Presses . . . up to 5 colors in Metal Plate Oil Ink Presses, roll to roll or sheet delivery . . . up to 6 colors in Aniline Presses . . . up to 4 colors in the narrow Celloprinter . . . and now: Multi-Color Gravure Unit Presses in printing widths from 20" to 54", allow us to provide the most complete press service in our history.

In Gravure, as in our other "Three Point" Presses, Kidder is prepared to furnish presses of the finest quality backed up by thoroughly experienced Gravure engineers who are available for consulting and field engineering service.

Inquiries should be addressed to:

KIDDER PRESS COMPANY, INC.
PRINTING MACHINERY
DOVER, NEW HAMPSHIRE

Sales Agent: A. E. Marconetti, Incorporated
Empire State Building • New York 1, New York



KIDDER
Manufacturer of "3
Point" Presses — so-
called because they
fulfill the three major
requirements for per-
fect printing.

CONTROL OVER
THE PAPER

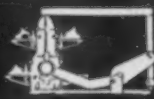
PROPER
DISTRIBUTION OF
INK

ACCURACY OF THE
IMPRESSION



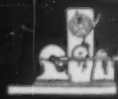
MULTI-COLOR
LETTER PRESSES

for waxed paper, box wrappers, etc.
rebound or sheet delivered — up
to 72 inches in width.



ANILINER and "CELLOPRINTER"
MULTI-COLOR PRESSES

with gravure units — for decorative
papers, cellophane, glassine, etc.
— up to 60 inches in width.



SLITTERS AND
REWINDERS

for paper mills, finishing rooms,
and converting plants — up to 115
inches in width.

Pulp & Paper Now Reproduced In Space-Saving Microfilms

Pulp and paper mills, colleges and libraries which subscribe to PULP & PAPER can now have microfilm copies of a complete year's volume of 13 issues, beginning with 1959. The 13th issue of course is the unique North American Review Number.

This offer is actually open to any subscriber. Public libraries, universities and colleges, government bodies, research or technical departments, supply or equipment companies may find the microfilms useful. Now they may keep issues unbound for a year—or two or three years—then destroy them and substitute the space-saving microfilm.

Inquiries concerning the purchase of these microfilm copies should be directed to University Microfilms, 313 North First St., Ann Arbor, Mich.

This company has been authorized by PULP & PAPER to produce and sell the space-saving microfilms of this magazine. Sales are restricted to PULP & PAPER subscribers and film copy will be distributed only at the end of the year. Positive microfilm is furnished on metal reels, suitably labeled. An entire volume on a single roll costs about the same as the cost of conventional binding of a volume of issues.

Bagasse Newsprint Still Not Equal to Wood Pulp

Somewhat harder, more brittle and heavier than wood pulp newsprint, six rolls of a bagasse newsprint were recently made at Chemical Paper Mfg. Co., Holyoke, Mass.

In widely publicized tests, the paper was used in a special edition of the Holyoke Transcript on Jan. 26 and for 16 pages of the weekly Washington Star on Feb. 2.

A 66-roll was still to be used by Chemurgic Digest, affiliate of the Star, and three rolls went to Puerto Rico and Argentina for tests.

The bagasse newsprint is non-absorbent and of low finish and is quite transparent, but it is possible bagasse paper-pulp plants will be built near sugar cane plantations in Puerto Rico particularly, and possibly South American countries to use the waste. J. G. Weimer of Kinsley Chemical Co., Cleveland, O., which developed a modification of the kraft process to make bagasse paper, heads a newly organized Bagasse Development Co.

WM. G. HERBERT became branch manager of the Tacoma, Wash., branch of the Seattle Div., Zellerbach Paper Co., as of Feb. 1. He was resale department manager of the San Francisco division. Bud B. Jones succeeded him in that post.

Theisinger Addresses Seattle Meeting on Clad Steel

Uses of clad steel and latest developments in the technique of fabricating it was the subject of a lecture by Dr. W. J. Theisinger (right), metallurgist with Lukens Steel Co., at a meeting of key personnel of Puget Sound Sheet Metal Works, Seattle, on Feb. 3.

Dr. Theisinger suggested that black steel with cladding of nickel, stainless steel, Monel or Inconel be considered where a vessel must be protected against corrosion by the contents, or where the contents must be protected against contamination or discoloration by iron. The choice of clad steel as opposed to a solid section of the corrosion-resisting metal is largely a matter of economics, based on the thickness of the required wall, Dr. Theisinger stated.

Dr. Theisinger said repeated tests show the thickness of cladding in various parts of a flat sheet will vary less than 1% of the total thickness of the sheet.

Dr. Theisinger showed samples of copper-clad steel, a new product, and the new Sodium Hydride Finish, highest finish at present economically practicable in clad steels.



Combustion Engineering Organizes Western Division

A Western Division of Combustion Engineering - Superheater, Inc., New York, has been established with headquarters in Los Angeles and branch offices in San Francisco and Seattle, announces J. V. Santry, president, as a step to meet the growing industrial activity of the West Coast.

ROBERT M. HATFIELD, JR., (right) formerly assistant general sales manager, has been appointed general manager of the Western Division, in charge of all activities in Washington, Oregon, California, Nevada and Arizona. Mr. Hatfield, an engineering graduate of Purdue University, has had 15 years with the company. For the WPB, as deputy vice chairman for production, he was in charge of production for all war industries.

H. G. Thielscher has been appointed chief engineer of the Western Division with headquarters in San Francisco. Frank Bader of Combustion's Philadelphia office, has moved to San Francisco, and Elmo Keeler of New York, goes on to Los Angeles. Hugh Nickle, formerly in charge of the company's Paper Mill Division in New York, continues as district manager of the Pacific Northwest.



Profit-Sharing Strikes Snag

Late last year the Continental Paper Co., Ridgefield Park, N. J., set up between labor and management what is known as the Rucker system, whereby (see Oct. 1949, PULP & PAPER) labor would share in profits accruing through savings and production. It has been widely watched and in February it struck a snag. After a six weeks' strike the management announced that the mill would shut down. The labor representative, a CIO leader, said, "They're bluffing." Time should quickly tell about that.

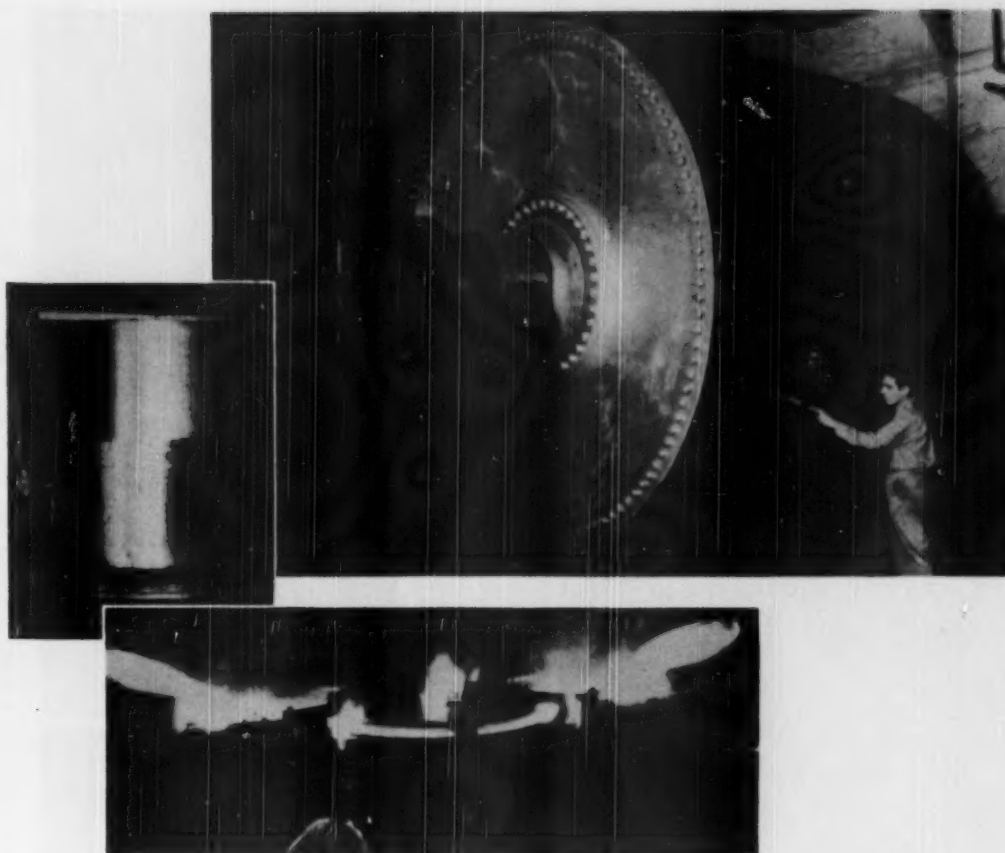
**EQUIPMENT
RAW MATERIALS**

*For Pulp
and Paper
Mills*

**MACHINE CLOTHING
SUPPLIES**

Pacific Coast Supply Company

SAN FRANCISCO • PORTLAND



A REFLECTION OF QUALITY

The mirror like finish on this 12-foot Yankee dryer reflects the same quality built into more than 425 rolls at Newport News since the war's end. Twenty-six dryer rolls of the size shown have been cast and machined with a finish to meet the users' requirements.

The rugged performance record of the Newport News all welded log barker has proven the soundness of its sturdy one piece construction. Other Newport News papermaking equipment in use in leading mills includes head boxes, digesters and tanks. INQUIRIES ARE INVITED.

NEWPORT NEWS SHIPBUILDING & DRYDOCK CO.

NEWPORT NEWS, VIRGINIA

clean condensate for return to boilers


no chemical dilution

uniform cooking

reduced cooking period

less steam required
for
black liquor evaporation

designed, engineered and constructed by Foster Wheeler

FOSTER  WHEELER

NEW YORK—MONTREAL Technical Conventions

(Continued from page 42)

size mill; acid condensate — this was deemed best for further experiment, and the authors propose to add to the pilot plant some equipment which will condense, collect, and circulate acid condensate.

Other Canadian Papers

Most of the papers were typical of the interests of the Canadian industry, such as J. E. Rattray's on newsprint, from the viewpoint of a finishing and shipping superintendent at Anglo-Canadian, Quebec. His theme: Newsprint in the pressroom must be treated with courtesy and understanding, which imposes equal manners in the mill's shipping department.

An outstanding paper in the ground-wood field, so important in the north, was offered by T. C. Anderson, assistant manager, Thunder Bay division of Abitibi. He favors large grinders over small in modern newsprint production, and pointed to several mills which in the last few years have replaced low production grinders with higher production units.

In the chemical field, the paper by I. J. Gruntfest and E. M. Young, Rohm and Haas Co., Philadelphia, created a fine attendance because, it covered aspects of the action of certain formaldehyde resins on paper. The interest had a natural corollary inasmuch as Canada consumes resins for paper by millions of pounds a year, and the amount is on the increase.

The Rohm and Haas men converted to the mechanism of retention of urea resins added to the beater when they appeared on the Tappi program in New York the following month. Here an entire session was devoted to wet strength and many an expert was there to handle more specific subjects. Notable were C. S. Maxwell and W. F. Reynolds of American Cyanamid who, because their company pioneered the promotion and use of wet strength to perhaps a higher degree than others in the U. S., were fit to tell—from long studies—about "The Permanence of Wet Strength Paper." And Dupont gathered together Messrs. Walsh, Pockman, Gallaway, Hartsfield, and Abernathy to tell U. S. technical men about "Neoprene Latex in the Paper Industry."

Bachmann and Geohegan Carry On As Leaders



Al Bachmann, vice president and general manager of Missisquoi Corp., Sheldon Springs, Vt., and president of Tappi, said that he was greatly pleased with attendance of the National Technical Convention in New York.

Mr. Bachmann (left) begins his second term as president, with Ken Geohegan (right), vice president of Howard Paper Mills, Dayton, O., as next in line and the "veep" of Tappi.

Equipment-Supply Men Provide 30 Papers in N. Y.

Equipment and supply men had a very prominent place in the technical sessions of "Paper Week" at the Commodore in New York Feb. 20-23. This year's program featured approximately 30 speakers from as many firms. It has been traditional that such papers give practical bone and sinew to the big annual event, but it is worthy of note because such a ratio of sustaining member speakers to mill men is unusual. And, by and large, mill members seem more reluctant than their Canadian counterparts to prepare papers involving specific equipment. If there is a shortage of really good mill produced papers this year, as reliably reported, then certainly the equipment and supply technicians came to bat in their usual trustworthy style. In any event there never has been doubt inside Tappi, or outside the technical group, about the "peddler-engineers" ability to do a Grade-A scientific paper. There is a sensible reason for the 1950 shortage of selection in papers from mill men. Like fiction writers (who cannot produce adequately during realistic periods of war and disturbed peace) mill men in times of change have more pressing duties than authorship even



S. G. KIRBY (left), elected the new Chairman of the Technical Section of the Canadian Pulp and Paper Association. He is with Price & Pierce Ltd., Montreal. JOHN SUSS (right), completed his term as Chairman at the Montreal meeting. He is Asst. Mgr. of Production, Provincial Paper Ltd., Toronto.

though they might like to add to their reputations and assist the industry. Equally pressing at such times are the duties of equipment men, but they can prepare papers in the secure thought that technical authorship is a part of their service to the industry.

Use of Radioisotopes

The only paper in the opening general session on Feb. 20 was prepared by an associate of Tracerlab, Inc., and A. P. Schreiber's discussion of radioisotopes in the pulp and paper industry was none the less interesting to the membership generally. It was not so long ago that Tracerlab, whose president is a young M. I. T. graduate, blossomed from delapidated quarters near Boston's South Station into a million-a-year business. It had been formed to see what could be done with the government's release of atomic pile by-products at Oak Ridge. Last fall, Tracerlab introduced its "Beta Gauge" and was out of the laboratory and into industry.

More Featured N. Y. Papers

On the second day Vortrap and Waco filter papers were given at Montreal, also progress of the curled pulping process was reported by James Coghill, The Curlator Corp. Prominent among mill men on the program was Tappi ex-president G. W. E. Nicholson, vice president in charge of manufacturing, Union Bag & Paper Corp. His talk on "The Role of the Chemical Engineer in the Pulp and Paper Industry" gave him a chance at his favorite subject, because when Mr. Nicholson first came to Union Bag there were few chemical



One of the Men behind Eastwood Wires Charles Worzel —A "Weigh" to Better Wires

Responsible for weighing up metals for our melting furnaces, Charles Worzel knows that upon his accuracy depends the fine quality of our fourdrinier wires.

The base of the alloys is determined by the precise proportion of copper, tin and phosphor copper that go into making the phosphor bronze

wires, and of copper and zinc that make up our brass wires.

A chemical analysis of each heat is made in our own laboratory.

The constant, complete control of our alloys is additional assurance of the high qualities of Eastwood Fourdrinier Wires and Wire Cloth.

EASTWOOD-NEALLEY CORPORATION • Belleville, N. J.

engineers and now the Savannah mill is noted for its emphasis on such men.

Among other papers on water problems were talks by Edward J. Cleary, Ohio River Valley Sanitation Commission; by Dr. Harry Gehm of the National Council for Stream Improvement; and a description of the operation of the Clariflocculator in white water recovery by F. A. Eidsness, Inflico, and Foxboro's John G. Dobson's paper on the control of sewer losses.

In chemical engineering, stainless steel equipment is rising in degree of interest, and W. H. Funk and J. B. Weiss of Lukens Steel were to handle the subject. Because few people claim to have solved the problem completely, considerable interest was bound to attach to "Chemical Cleaning of Black Liquor Evaporators" by H. H. Walther, Dowell, Inc. There were many listeners for pulping scrub oak on which three men from the University of Florida and G. B. Hills of St. Joe Paper Co. have collaborated. In this same alkaline pulping session Milton Roberts of Hudson Pulp & Paper discussed his experience with a multi-roll beater in a kraft mill.

A man popular from coast to coast and always welcome to a program is William R. Willets, Titanium Pigment, who took on a discussion of the rheology of paper coatings in the always

important coating session. The reverse roll principle in coating was ready to interest mill men who would listen to Lawrence W. Egan of the Frank W. Egan & Co., who set forth the results on a laboratory coater with dryer, using five solutions in a series of runs. In the same session Ralph W. Kerr of Corn Products Refining spoke on starch for machine coating; D. A. Hughes and W. L. Craig, R. T. Vanderbilt, on enzyme conversion as applied to machine coating; Messrs. Gusman, Frisch and Sweeney of Stein Hall on "Insolubilization of Starch by a Lycoid-Mannogalactan Base Material"; casein was discussed by J. W. Smith and R. T. Trella of Hercules Powder; and M. J. Mason of Anheuser Busch told of the use of the corn industry's viscometer in the study of paste characteristics of starch and its preparations.

The Papermaking session featured a symposium on paper machine slices by Robert W. Pattison, Cellulose Fibre, Inc.; F. O. Boylon of Crown Zellerbach, Camas, who has had wide experience on high speed tissue machines; Vernon P. Tipka, News Print Service Bureau; T. L. Yocum of E. D. Jones and Mr. Coghill of Curlator, were in this session.

The Chemi-pulper developments by R. G. Goodwin, Paper and Industrial Appliances, and

the report of Dr. J. N. McGovern, U. S. Forest Products Laboratory, on yield and properties of spruce and aspen sulfite pulps, were important.

Makes Sulfite Survey

Jack Wilcox, manager of the process equipment division of Electric Steel Foundry Co., Portland, Ore., and one of the most widely traveled engineers in the chemical pulping industry, gave an interesting factual report on the results of a survey he made of the uses of circulating systems and indirect heaters throughout the industry. A major conclusion he reached from data received was that in about two-thirds of the sulfite mills circulating systems are used and 42% indirect heating or Hydro Heaters. Of the 105 North American sulfite mills (excluding Mitscherlich) 82 replied; 52 reported having chip packing; 64, fast cooks; 71, strong acid and 66, hot acid.

Sulfite Pulping of Hardwoods

Considerable interest focused on ammonia-based sulfite pulping of hardwoods by E. F. Thode and Y. H. Lee of the University of Maine.

Drastic ammonia base acid sulfite pulping preceded by impregnation with neutral ammonium sulfite was studied using commercially prepared mixed hardwood chips, composed of birch, beech, and maple. Variables studied were: temperature of impregnation, time of cook, temperature of cook, and per cent combined sulfur dioxide in the cooking acid. Eight indirect cooks of this nature were performed in a laboratory digester at Maine, according to the following schedules: Steaming, one hour at 237°F; impregnation, two hours at 240° or 270°F; cooking, two to four hours at 295° to 315°F, and 100 p.s.i. gage pressure. A very sharp temperature rise was used.

For purposes of comparison, a conventional cook using ammonia base sulfite cooking acid was performed on chips from the same batch. In this particular cook no steaming or neutral impregnation were employed, but the usual slow temperature rise and long cook (12 hours) at moderate temperature (275°F.), characteristic of conventional acid sulfite pulping, was used. Alpha cellulose, permanganate number, and beater performance were determined for each cook; also, bleaches were conducted on a few selected cooks.

Results show that the best set of conditions tried gives results comparable to a conventional cook in about half the digester time required for such a long cook. Furthermore, the spent liquor resulting from the impregnation needed for this rapid cycle may be re-fortified and reused. Yields of about 45% and alpha cellulose contents (unbleached) of up to 86% were reported. It is concluded that the relatively high diffusion velocity of the ammonium ion makes the use of this base highly attractive in the sulfite pulping of hardwoods.

Valley Iron Works Supplies School Equipment

Valley Iron Works Co., Appleton, Wis., has recently furnished equipment for the new Pulp and Paper Technology School of Western Michigan College at Kalamazoo, Mich. The equipment supplied includes two 1½-lb. Niagara beaters, a Valley sheet mould with auxiliary equipment and Valley Chain-O-Matic weighing oven.

No Meeting for Northwest Supts.

The Northwestern Division of the Superintendents' Association cancelled plans for a 1950 spring meeting, according to its chairman, L. S. Sabatke, of Marathon Corp.



PEDIGREED DOGS

CHOW CHOWS — This dog, once a native of China, is now very popular here. With his heavy coat and handsome ruff he looks most distinguished. While generally friendly he is essentially a one man dog.

The DRAPER Felt

The Felt with a Pedigree

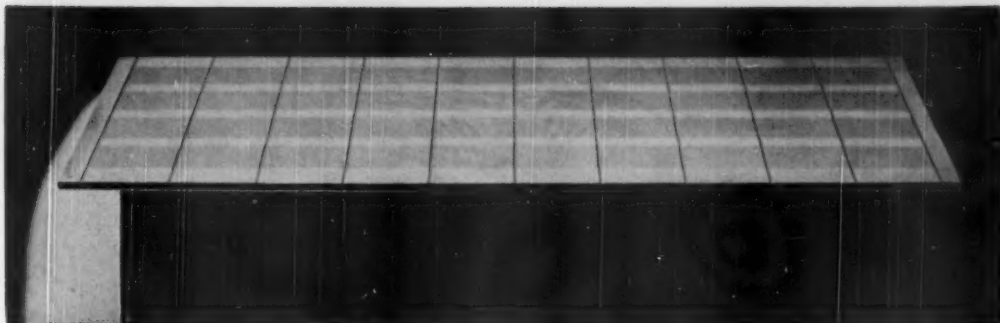
DRAPER BROTHERS COMPANY

Woolen Manufacturers Since 1856

CANTON, MASSACHUSETTS

RALPH E. BRIGGS, Sales Manager

BRADFORD WEST, Pittsfield, Mass. WILLIAM M. CONNOR, Jr., Canton, Mass. L. H. BREYFOGUE, Kalamazoo, Mich.
WALTER A. SALMONSON, 2514 Northwest 39th Ave., Portland, Oregon L. L. GRIFFITHS, Jr., Kalamazoo, Mich.
HAROLD H. PISH, Syracuse, N. Y.



The "Hardy" Chrome-Nickel-Steel SCREEN PLATE

OVER 20,000 IN SERVICE

No slot wear in fourteen years! The important sharp top edge and burnished cut remains unaffected by erosion and corrosion. AND DO THEY SCREEN!

MAGNUS METAL CORPORATION


FITCHBURG, MASS.

**THERE'S PROFIT IN
WASTE UTILIZATION
WITH THE
SUMNER REFUSE HOG**

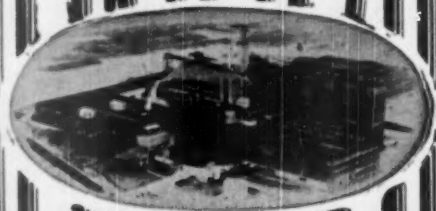
This fact is recognized for example, by C-Z Corp., and most other American and Canadian Pacific Coast Pulp and Paper Mills. This photo shows C-Z's new No. 65 double anvil Sumner Refuse Hog at Camas, Washington—a typical Hog installation. Because of simplicity and sturdiness of construction, proven operating reliability, and the all important prompt availability of replacement parts, the Sumner name has been the proper synonym whenever a West Coast operator thinks of Refuse Hogs. Detailed information on Sumner No. 35, 45 or 65 Hogs gladly furnished on request.

SUMNER
IRON WORKS
EVERETT, WASHINGTON





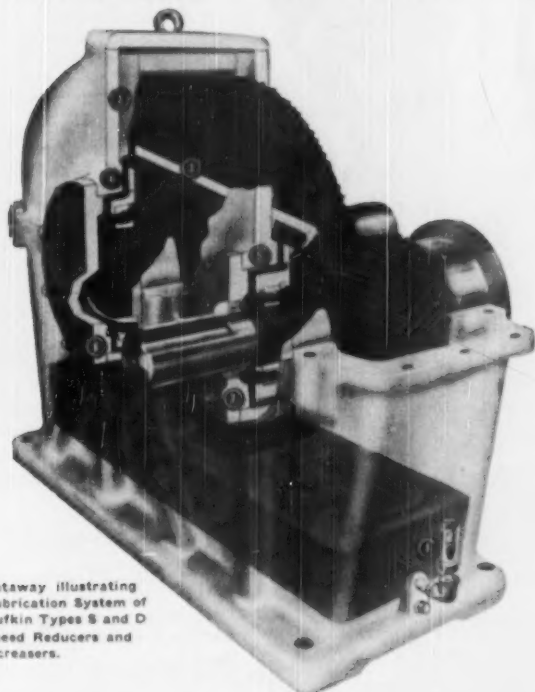
SOUNDVIEW



High Grade
**BLEACHED
SULPHITE PULP**

SOUNDVIEW PULP COMPANY
EVERETT WASHINGTON

gears with Guts



Cutaway illustrating Lubrication System of Lufkin Types S and D Speed Reducers and Increasers.

LUFKIN GEARS FOR INDUSTRY



You buy more than Gears when you order from Lufkin. Yes, Lufkin Gears are the product of an organization with a reputation for quality equipment since 1900. Lufkin Gear assemblies are serving all types of industry from Paper Mills to Pipe-Lines, and Lufkin Gears are a part of every one of the famous Lufkin Pumping Units . . . Pumping Units that have won the respect and confidence of oil Producers the world over . . . A quarter of a century of performance under rugged conditions qualifies Lufkin as producers of Gears With Guts.

COMMERCIAL

Gear Assemblies

for
SPEED REDUCING
and
SPEED INCREASING
SERVICE



LUFKIN FOUNDRY & MACHINE COMPANY

BOX 239 • 5445 SOUTH ALAMEDA STREET, LOS ANGELES 1, CALIFORNIA • (213) 777-1201

HOME OFFICE—LUFKIN, TEXAS

Personals

PACIFIC COAST

Detcher of Barrett Visits Pacific Coast

T. E. Detcher, well known in the chemical field, representing the New Products Development Department of the Barrett Division of Allied Chemical & Dye Corp., New York, made a trip to Washington and Oregon in February, attended an industry meeting in Everett, and made a survey of the developments in the study and use of ammonia as a new base for the sulfite pulping process.

W. P. "BILL" FOOTE, Pacific Northwest representative of the Bristol Company, White Bldg., Seattle, was recovering from an appendectomy as this issue went to press.

HOWARD GERBER, Middle West and Pacific Coast representative for Williams-Gray Co., suppliers, 221 No. La Salle St., Chicago, was on the Pacific Coast in February. He visited Oregon and Washington mills and included stops in Seattle, Tacoma, Longview and Portland.

JOHN V. ROSLUND, Pacific Coast representative for Downington Mfg. Co., Asten-Hill Mfg. Co. and Waterbury & Sons, since early last year, and Mrs. Roslund and their young son, Jerry, are living in an apartment at 2042 Southwest Madison, Portland, Ore. His office is in the Pacific Bldg. Two older sons are John, at Carnegie Tech, and George, at Cornell.

MERRILL D. ROBISON, of the Pulp Division, Weyerhaeuser Timber Co., has transferred from the Longview, Wash., plant to the new operations at Springfield, Ore., working in engineering department at each mill.

T. J. KENNEDY, secretary-treasurer and general manager of Pacific Paperboard Co., Longview, Wash., recently returned from a month's trip to the Orient to re-establish paperboard trade relations with pre-war customers. He went by way of Los Angeles, Honolulu, Midway, and Tokyo to Shanghai, leaving Oct. 24 and returning in late November.

VICTOR E. HECHT, vice president of Zellerbach Paper Co., San Francisco, made a trip to Seattle to participate in two meetings held as part of observance of Printers' Week in January.

CLYDE W. KING, manager of public and industrial relations for all Fibreboard plants, and Mrs. King celebrated their 25th wedding anniversary with a party at the Officers Club on Treasure Island, San Francisco Bay. Rumor has it that three notorious entertainers from the Port Angeles plant received their invitations too late to attend.

GEORGE I. ADAMS, traffic manager, Fibreboard Products, Inc., Port Angeles, recently went into the auto court business by purchasing the Travelers Motel there. Any salesmen desiring special rates should contact Mr. Adams.

WHERE A QUICK
OPENING VALVE
IS NEEDED

MURCO
QUICK OPENING
GATE VALVE

MINIMUM
MAINTENANCE



SEVEN STYLES

- Cast Iron Body, Disc and Gland, Steel Stem. Flange drilled for spiral pipe.
- Cast Iron Body, Disc and Gland, Steel Stem. Flange drilled for iron pipe.
- Cast Iron Body, Bronze Disc, Gland and Stem. Flange drilled for spiral pipe.
- Cast Iron Body, Bronze Disc, Gland and Stem. Flange drilled for iron pipe.
- Cast Bronze Body, Disc, Gland and Stem. Flange drilled for spiral pipe.
- Cast Bronze Body, Disc, Gland and Stem. Flange drilled for iron pipe.
- Cast Stainless Steel Type No. 316 Body. Stainless steel disc, gland and stem. Flange drilled for iron pipe.

DESIGNED so that it is narrow from face to face of flanges that permit installation where space is limited, Murco Quick Opening Gate Valve can be operated in a fraction of the time required with a screw valve. Specially applicable for handling pulp and paper stock and water under low pressure.

The valve gate can be held in any position through the use of the clamp lever nut. Gate is easily removed from valve without disconnecting valve from the pipeline. To remove gate from valve, simply loosen two bolts which hold the bonnet to the body of the valve. Because of this feature, the valve can be cleaned very easily.

Very little maintenance — no hand wheel — practically no wear on stem. Stem is easily removed from gate. A stem extension can be added to permit operation from higher elevations.

Quotations furnished for your gate valve requirements.

MURCO
D. J. MURRAY MANUFACTURING CO.
WAUSAU WISCONSIN
Manufacturers Since 1883



are you making
the most of
these facilities?

Unsurpassed Starch Chemistry Research
... the foremost research men in the industry direct a continuing basic research program in starch chemistry.

Highly Skilled Technical Service ... widely experienced men make on-the-spot studies concerning your production problems.

Practical Engineering Service ... to help you apply new methods, new procedures, in your production.

These service links can be extremely valuable to you in your various production problems . . . to help you make better paper more efficiently and economically with such uniform quality products as:—

GLOBE
Starch for the beaters and for enzyme conversion;
AMIJEL
for the beaters;
CORAGUM
for corrugating; and
LAM-O-DEX
for laminating.

CORN PRODUCTS REFINING COMPANY
17 BATTERY PLACE • NEW YORK 4, NEW YORK

PULP & PAPER

Personals

PACIFIC COAST

WINSTON SCOTT, resident manager of the Shelton, Wash., division of Rayonier, Inc., has been elected vice president of the Shelton Kiwanis Club.

RUSSELL J. LEROUX, pulp mill manager, Weyerhaeuser Timber Co., Everett, has been elected the new president of the Everett Chamber of Commerce.

RAY OLSON, who graduated from the University of Washington in December, 1949, with a BS degree in industrial and mechanical engineering, has joined the engineering department of Weyerhaeuser Timber Co.'s pulp division at Longview, according to R. E. Baker, Longview mill manager.

LOUIS VAN ARSDALE, plant engineer for Rayonier, Inc., at Shelton, Wash., his wife, Katherine, and son, Norman, enjoyed a flying vacation to Honolulu during the unusual blizzard and snow period in January in Washington. Their takeoff was delayed a day by the blizzard.

F. O. "NICK" BOYLON, paper mill superintendent, tissue section, Crown Zellerbach Corp., Camas, Wash., was at Pacific Mills, Ltd., Ocean Falls, B. C., on consulting work during early half of February.



JAMES I. METCALF, former Western Mgr. for Morse Engineering Co., and over 25 years a consultant on TVA, St. Lawrence-Niagara, Bonneville, and other hydroelectric projects, has opened his own office in the Lloyd Bldg., Seattle—Jas. I. Metcalf & Co., consulting engineers on power and water supply.

Burke Morden on Tour Of European Countries

Burke Morden, vice president of Morden Machines Co., Portland, Ore., flew Feb. 24 from New York to Europe to join Ralph Hayes, head of Millspaugh, Ltd., Sheffield, England, paper machinery manufacturers. They were to tour England, France, Belgium and Holland and Mr. Morden is returning by plane in April. Millspaugh, Ltd., agency for Morden Stock-Makers has placed over 100 in mills in those countries and Sweden.

A. N. HARTNAGEL, asst. mgr., Fibreboard Products Inc., recently took a visitor to the ferry at Port Ludlow in his new Buick. A snow storm caused them to miss their road and before the error was corrected, they missed the ferry. His passengers Mark Sanford, of San Francisco, general operating manager of the company, and C. V. Basom, local mill manager, enjoyed giving "Nellie" up to the minute information during the trip on their progress and miles yet to be traveled before ferry time.

Wm. K. Stamets, Jr., Opens Engineering Office

William K. Stamets, Jr., consulting mechanical engineer, has opened his own office in the Hoge Bldg., Seattle 4, and was in attendance recently at the Everett Engineering meeting of this industry. He offers design and development services in plant layout, special-purpose machinery, new products and industrial management.

He returned to Seattle, where he had been a bureau of ships naval officer during the war, from Cornell, where he taught machine design. He was engineering consultant to Morse Chain Div., Borg-Warner Corp. He is a vice president and director of William K. Stamets Co., Pittsburgh and Cleveland manufacturers of machine tools.

J. W. BONNAR, chief engineer of Fibreboard Products Inc., Port Angeles Division, did not make his customary pilgrimage to Eastern Washington for his sixth unsuccessful attempt to bag a deer. Instead he spent a weekend at the company's logging camp with customary results.

Council Representative of Coast

Robert P. Logan, chemist and sanitary engineer, formerly with Dorr Co., has joined the National Council for Stream Improvement as resident engineer to serve Pacific Northwest mills. He arrived on the West Coast in mid February and will make headquarters either in Portland or Seattle.

His first duty was to tour Northwest mills. He will work with Oregon State College and the University of Washington on research matters.

this CARCO arch-winch rig costs less to buy costs less to keep

Top production at lower cost is the keynote of business these days—and so it is with loggers. Include Carco tractor equipment in your cost-cutting plans because:

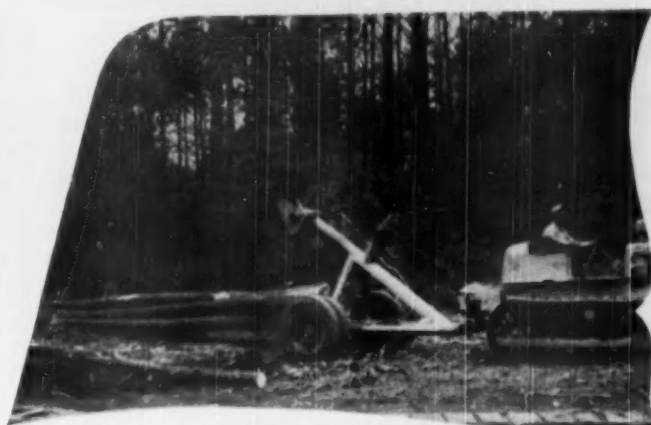
Carco's first cost is less.

Carco's maintenance cost is less.

Carcometal used in these products stands up—it's cast in lighter sections because it tests at 100,000 pounds per square inch, twice ordinary steel.

The oversize winch bearings and shafts running in oil last longer. When service is required any Carco winch or hoist can be serviced without removing it from the tractor. All parts are interchangeable.

Through the years Carco has proved it can stay on the job and produce. And now when costs are important Carco equipment is saving money for loggers through less downtime, less upkeep, and a right first price.



there's a CARCO winch or hoist for nearly every crawler tractor ever made

Send coupon for your free literature today

PACIFIC CAR AND FOUNDRY COMPANY

RENTON WASHINGTON U.S.A.
BRANCHES: PORTLAND OREGON, FRANKLIN PARK ILLINOIS

<input type="checkbox"/> Full line		<input type="checkbox"/> Tractor	
Name			
Address			
City			
State			
Name			
Address			
City			
State			

Please send Carco winch and hoist literature

PACIFIC CAR AND FOUNDRY COMPANY
Renton, Washington, U.S.A.



CANADA

E. LORNE GOODALL, succeeds the late F. A. Sabbath as new president of Dryden Paper Co. Mr. Goodall was formerly vice president and managing director. A McGill graduate, Mr. Goodall first worked for the Abitibi organization and in 1947 he resigned as divisional manager at Port Arthur for Provincial Paper, Ltd. and chief engineer for all Provincial Paper divisions, to join Dryden.

HENRY ROBERT ADAMS is the new technical superintendent of the pulp mill division, Bloedel, Stewart & Welch, Ltd., at Port Alberni. Ontario-born, he served several years as technical director of Bowater's Newfoundland Pulp & Paper Mills, Cronsett Paper Mills and Dunn Paper Co., Port Huron, Mich.

HOWARD REID, coast logging superintendent for Columbia Cellulose Co., building a dissolving pulp mill at Watson Island, B.C., was recently hailed for his heroism and resourcefulness when he directed the rescue of seven men who had been marooned by sub-zero weather on the icebound Naas river.

C. B. McKENNA, the new secretary-treasurer of Wallboards, Ltd., Toronto, was formerly mill manager of the Nipigon Corp., subsidiary of Brompton Pulp & Paper Co. at Nipigon, Ont., which was shut down when groundwood manufacturing facilities were installed at the company's new mill at Red Rock, Ont.

SYDNEY T. "PAT" DOLAN, machine tender, engaged in the industry in British Columbia and in eastern Canadian mills for over 20 years, has now taken up residence at 563 Northeast 2nd St., Camas, Wash. He joined the Crown Z organization in Ocean Falls, B. C., in 1928 and except for six years in the east, has lived in the Pacific Northwest.

B. C. Executives

Attend CPPA Meeting

Among British Columbia company executives who crossed the continent to attend the Canadian Pulp and Paper Association's annual meeting in Montreal were, Harold S. Foley, president of Powell River Co. and retiring chairman of the association; Prentice Bloedel, president of Bloedel, Stewart & Welch; Paul E. Cooper, president of Pacific Mills; William Barclay, vice-president Powell River Sales Co.; Robert R. Edwards, assistant manager Pacific Mills; Russell M. Cooper, resident manager, Powell River Co.; Dr. R. H. Ball, M. Martin and R. O. Evans, Columbia Cellulose Co.; Leander Manley, Western Branch CPPA; G. R. Bolton, traffic manager, and H. C. Pim, sales manager, Pacific Mills; Ross Black, Powell River Co.

J. S. HART, research associate of the Pulp and Paper Research Institute of Canada, Montreal, visited several British Columbia mills recently. He addressed the technical stuff of Pacific Mills, Ltd., being introduced by **DR. WALTER F. HOLZER**, of the central research department, Crown Zellerbach Corp., Camas.

CHARLES P. OWENS, for the past 31 years superintendent for Canadian Stebbins Engineering Co. at Shawinigan Falls, Que., died suddenly in December.

R. S. BAKER, who played an important part in preliminary development plans for Celanese Corp. of America in connection with its Columbia Cellulose Co. mill at Watson Island, B. C., died Jan. 7 in Montreal.

HORACE H. SEARS has succeeded R. J. Ellis as sulfite superintendent at the Riverbend mill of Price Brothers & Co. on the latter's retirement because of ill health. Mr. Sears has been with the Price organization since 1937.

D. O. WHITE is the new control superintendent at Manitoba Paper Co., Pine Falls, Man., having been transferred from the head office of the parent company, Abitibi Power & Paper Co., Toronto. He was formerly with Price Brothers & Co.

W. M. ORCHARD, formerly control superintendent for Ontario Paper Co. at Thorold, Ont., has been appointed assistant general manager of St. Croix Paper Co., according to announcement by President H. L. Hayes.

J. V. PERRIN, Brown Corp., Quebec City, was re-elected president of the Quebec Forest Industries Association recently. Vice presidents are K. O. ROOS and R. ARMITAGE, Price Brothers Co.

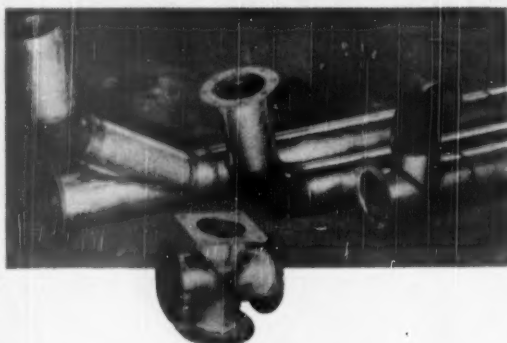
S. G. SMITH, vice president and general manager, Bloedel, Stewart & Welch, operating a sulfate mill at Port Alberni, spent a winter vacation in Jamaica.

NILES ANDERSON, formerly vice president and general manager, Marathon Paper Mills of Canada, and in recent years consulting engineer in Toronto, drove to the coast in February by way of the Southern states.

LAMONTE J. BELNAP, chairman of the board, Consolidated Paper Corp., Montreal, was a visitor to the Pacific Coast in February on vacation.

COLIN C. MACDONELL, well known in the eastern Canadian and Newfoundland mills, wrote last month from his address at Caixa Postal 1281, Porto Alegre, R.G.S., Brazil, where he has been doing work for sulfite mills and says industry prospects in South America look very promising.

LONG LIFE AT LOW COST



B-H Fabricated Monel Elbows, Tees, Pipe Assemblies

Brown-Hutchinson special fabricated fittings of Monel, installed in large and small pulp and paper mills throughout the country, have set new records in cutting maintenance and replacement to a minimum. Built to your exact requirements they afford unlimited flexibility in design without extra cost. B-H engineered stock lines, head boxes and pipe fitting installations result in greater efficiency, increased production.

Extra Bonus Features of B-H Engineered Alloy Equipment:

- Rustproof and Resistant to Chemical Attack
- Lightweight But Stronger Than Structural Steel
- Welds As Corrosion Resistant As the Alloy Itself
- Free Flow—No Fiber or Sludge Accumulation
- Maximum Wettability and Stock Cleanliness
- Lowered Costs—Greater Ease of Installation or Relocation

Investigate the money-saving possibilities of B-H fabricated equipment in your own mill. Consult us on any problem without obligation.



BROWN-HUTCHINSON IRON WORKS

Serving Paper and Textile, Marine, Chemical and Petroleum, Metal Processing, Food Processing Industries

1831 Clay St.
Detroit 11,
MICHIGAN
Trinity 4-0080

... is corrosion eating away your profits?

**SARAN
RUBBER
TANK
LINING
resists
corrosion!**

**easily installed!
highly resistant
to abrasion!**

Saran rubber, developed by The Dow Chemical Company, leads the way to cutting corrosion costs to a minimum. The extremely high degree of chemical and abrasive resistance, found in saran rubber, makes it the outstanding tank lining where the storage and conveyance of grease, solvents, acids or other chemicals is indicated.

Saran rubber can be applied easily and economically by experienced tank lining applicators located strategically throughout the country. Saran rubber lined pipe is available also—8 inch diameters and larger, and up to 20 feet in length.

Get in touch with an applicator today by contacting your nearest Saran Lined Pipe Company office—find out how you can add many years to the life of your costly equipment. Write: Dept. TSP-78.

Distributed by

Saran Lined Pipe Company

701 STEPHENSON BUILDING • DETROIT, MICHIGAN

Offices in: New York • Boston
Philadelphia • Pittsburgh
Chicago • Tulsa • Portland
Indianapolis • Houston
San Francisco • Denver
Los Angeles • Cleveland
Seattle • Charleston, S. C.
Tampa

TSP-78

DOW

March 1950



**It is later
than you think...**

SUPERINTENDENT Bill, it's time to take off that wet felt and replace it with a new Hamilton.

MACHINE TENDER: But Boss, that felt isn't worn out. We could get a lot of production from it by slowing down the machine.

SUPERINTENDENT: Sure you could. But you would get a lot of felt marks into your sheet, too.

MACHINE TENDER: We will smooth them out at the drier rolls.

SUPERINTENDENT: Listen, Bill. The only way to get felt marks out of a sheet is to change felts before matted nap and clogged mesh can put them into it.

MACHINE TENDER: You've said a mouthful, Boss.

*From the thinnest tissue to the heaviest board
there is a Hamilton Felt that will last longer
before changing is needed.*

SHULER & BENNINGHOFEN

HAMILTON, OHIO

Miami Woolen Mills, Established 1858

**Hamilton
Felts**

STATEMENTS BY OFFICIALS OF WASHINGTON MILLS

(Continued from Page ...)

operation, and successful operation cannot be assured until we have had the experience of continuous operation at full capacity for several months yet.

"Our engineers are presently engaged in studying the adaptation of the MgO process at the Everett Mill and in preparing plans for the installation of the same there, if and as soon as the process has been proven successful. That is to say, if and as soon as the MgO system is proven successful at Longview, a like system will be installed at Everett. You will readily realize that a premature installation, the success of which had not been established, might tend to delay rather than accelerate the solution of the problem."

Supplementing Mr. Morgan's comments, were statements made in Everett by the mill manager for Weyerhaeuser there, RUSSELL J. LE ROUX:

"It is our aim to continue to develop this plant and modify and rebuild it as experience may prove necessary, until it is proven either successful or unsuccessful. We are presently engaged in rebuilding the boilers and fireboxes and trying out new materials in places where unusual corrosion problems have been encountered."

"The conditions at our Everett mill are different from those at Longview. The Everett mill location does not afford the tolerance of sulfite dioxide discharged in the air that Longview does, and the Everett mill uses salt water borne wood, containing absorbed salt, while Longview does not."

"We are also following the developments of the work being done by the Soundview Pulp Co. and Crown Zellerbach on another process at Lebanon, Ore.; and should this process prove a better answer, we will consider its installation at Everett. Our purpose is to install the most practical solution to the waste disposal problem as soon as it is available."

"Section IV of the proposed resolution of the Pollution Control Commission seems to be based on the erroneous assumption that the MgO process has already proven successful, and hence a 'reasonable method' to prevent and control pollution. It is true that the process has, at Longview, substantially reduced waste liquor discharged, but the difficulties encountered have prevented continuous operation of the equipment, so that at times there is still a heavy discharge of waste liquor; and the process cannot as yet be said, with any degree of certainty, to be a 'reasonable method' to prevent and control the pollution. Even though the process does prove successful at Longview, this does not necessarily mean it would be successful at Everett, because of the salt content of the logs used there, which have to be moved in salt water. We are hopeful that this factor will not prevent the use of the process, but recent experiments at Longview have indicated that the salt content of the logs may give trouble on a full-scale continuous operation."

"Before the MgO can be recommended at a salt water location, it will be necessary to add an amount of salt to the process at Longview for a period of weeks to determine its effect, and this cannot be done until present difficulties are overcome."

Soundview Views on MgO and Ammonia

The Seattle P-I, in its highly colored report of the mill responses, tried to imply that there was a sharp division between Soundview and the other mills because, as it reported, "only the answer of U. M. DICKEY, Soundview president, reported acceptance of the resolution (later the commission's mandatory order) without making numerous counter suggestions."

This proved a hasty and ill-founded attempt of the P-I to take a left-handed slap at the other mills, because Mr. Dickey had simply left it up to his vice president and technically-trained general manager, LEO S. BURDON, to make the "counter suggestion" in a state-

ment issued a few days later in Everett. Said Mr. Burdon:

"Research efforts with correspondingly substantial expenditures of money have not as of this date definitely produced any assured process or processes whereby effluent of our type can be utilized. We and others are carefully observing results from the magnesium oxide base operation now in its initial operating stages at Longview. Our observations suggest to us that it does offer encouraging prospects, but again as of today, considerable remains to be done chemically and through changes in the type and character of equipment currently employed before its ultimate success is assured."

"In 1949 our company entered into a joint agreement with the Crown Zellerbach Corp. whereby ammonium would be substituted for calcium or lime at its Lebanon, Oregon, plant. The first steps in the venture were completed in December at a cost of several thousand dollars, and the initial runs of the product are being made at the present time."

"The directors of both companies have just authorized an additional \$200,000 to carry the Lebanon experiment through the next step, namely, that of evaporation and burning the residual effluent after evaporation. In other words, it will be substituted for fuel oil in identically the same manner as the magnesium base process at Longview. However, engineering and equipment purchases will require from six to eight months to place in operation."

"It should thus be apparent that every effort is being made to utilize this material, but the utilization of same must of necessity follow research and fairly large pilot plant operations, because it is only by such processes that the matter will be worked out. Another factor from our own viewpoint is that several million dollars will be involved in any plant to accomplish this purpose. Failure to recognize this line of action could bring about rather disastrous results to the State of Washington from the standpoint of employment and tax revenues, in addition to jeopardizing the large number of paper mills throughout the country who are dependent upon us for a continuing supply of raw material for paper production and other specialty purposes."

FOURTH in a series of illustrations showing types of
"HEAT EXCHANGERS" manufactured by
The Alaskan Copper Works



Alaskan Type "B" Units

These Standard "shell and tube" type units are almost universal in their application for conditions where considerable difference in temperature exists between the shell side medium and the tube side medium.

The U type tube construction takes care of expansion differences at varying temperatures. The bundle is completely removable and can be replaced or repaired without undue difficulty.

Close control of temperatures can be effected with temperature control valves regulating flow into either shell or tubes.

Our Engineering Department is available to
supply a unit to fit your exact requirements.

ALASKAN COPPER WORKS

3609 E. MARGINAL WAY EL. 4494 SEATTLE, WASHINGTON

Crown Zellerbach Reply

FRANK D. YOUNGMAN, vice president of Crown Zellerbach Corp., with offices in Portland, Ore., wrote Mr. Eldridge on Jan. 20 in part:

"Crown Zellerbach Corp., as you know, has spent a great deal of time and study on ways and means of correcting this condition (pollution in Camas Slough). We believe we have a practical solution for the problem."

"The commission has in its office detailed drawings which we have submitted and containing revisions suggested by the commission itself for a pipe line extending from the mill across Camas Slough and Lady Island for ultimate discharge into the bottom of the main channel of the Columbia River. We are quite certain with the tremendous flow of the river that quick dispersal and dilution will not only meet the B.O.D. requirement but the liquor will also be of such dilute solution as to entirely eliminate fungus growth."

"The cost of this pipe line will be approximately \$225,000.00 and should be completed within approximately six months from the time the work is started. This might take a slightly longer time if we run into rock conditions now being fully investigated as a result of your request that the outlets be extended further into the main channel."

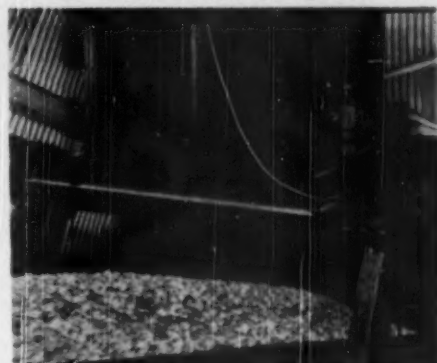
"We feel that after the completion of this installation the standards established by the Control Commission as far as the Camas mill is concerned will be fully met. It is further our feeling that in view of this very substantial expenditure that the standards as far as the Camas mill is concerned should not be changed for a reasonable length of time to enable us to amortize such installation. It is our belief this would be five years from the date of completion."

"The commission understands, of course, that we will continue with our own investigations for a permanent solution and will keep in close contact with other methods now developed or in process of development."

Rayonier's Reply

The reply for the Rayonier mill at Hoquiam was written by J. T. SHEEHY, manager of the

IT'S MERRICK AT THE PULP MILLS



Weightometer—Ideal for delivering predetermined charges of chips to digester. Permits maximum use of digester. Provides records to determine pulp yield. Is also used to weigh Coal, Bark, Wood Waste and Sawdust.



Feedweight—For continuous feeding of predetermined tonnages of Lime and Salt Cake to process by weight—weighing and feeding—another important step in the Mechanization of this industry. Consult us on your problems. Bulletins on request.

MERRICK SCALE MFG. COMPANY

Passaic, New Jersey

Grays Harbor Division. In view of expensive installations already made at Hoquiam by his company to pond liquor, he did not admit that the sulfite liquor in amounts and periods flown into the harbor waters were now harmful to the fish.

He said his company installed ponding facilities in 1942, in compliance with the request of the state regulatory agency, "to segregate and collect substantially 80% of the sulfite waste liquor produced at the plant in Hoquiam, and impound this material in a basin prepared on Rennie Island in the lower portion of the Chehalis River. This impounding is started when the flow in the Chehalis River falls below 2500 cubic feet per second or when the dissolved oxygen contained in the water at the specified stations in the Chehalis River falls below 5 parts per million; and is continued until the river flow exceeds 2500 cubic feet per second and the dissolved oxygen in the water exceeds 5 parts per million."

Because it was built during war years, Mr. Sheehy recalled materials were inferior and there were breakdowns, but these were replaced with more suitable materials at the company's own expense. He concluded: "Although we feel our cooperation is excellent, we are continuing effort . . . For the year 1950, it is our intention to further increase the percentage of liquor withheld from the Chehalis River and Grays Harbor during periods of critical water conditions."

Home in Eugene, Oregon, ranch type, less than year old. Located 3 miles from Eugene, halfway to Springfield. A precision built home, containing living room, dining room, kitchen, nook, three bedrooms, double plumbing, utility room, double garage, automatic radiant heat, fully insulated. House sits on acre of fine soil, with fruit trees, berries, shrubbery. High pressure automatic water system. Built by owner for over \$31,000, will sell for \$26,500. Write Ralph Fulbright, Malory Hotel, Portland, Oregon.

FOR SALE

4 knife 96" Murray chipper
1—Left hand 96" roller bearing chipper with complete direct-connected drive as follows:

- 1—Synchronous Motor, 150 HP, 240 RPM, 440 Volts, 3 Phase, 60 Cycles, 80% leading power factor. Exciting volts, 125.
- 1—Control Panel, full voltage starting, Field Rheostats, etc.
- 1—Separate exciter, 440 volts A.C., 125 volts D.C.

This equipment is complete and ready to operate. (Prints sent upon request)

Reply Box P&P-66, Pulp & Paper, 71 Columbia St., Seattle 4, Wash.

COMING INDUSTRY MEETINGS

National

Nat'l Paper Trade Ass'n. (Annual Meeting) — Waldorf-Astoria, New York City March 27-29

Nat'l Packaging Exposition—Navy Pier, Chicago April 24-27

Technical Committees, Pkg. Institute—Furniture Mart, Chicago April 25

Joint U. S.-Canada Fundamental Research Conf.—Chateau Frontenac, Que. May 29-30

Supts'. Ass'n (Nat'l Meeting) — Edgewater Beach Hotel, Chicago June 8-10

Paper & Twine Ass'n. (Annual Meeting) — French Lick Springs Hotel, French Lick Springs, Ind. June 16-17

Envelope Mfrs. Ass'n. — Greenbriar Hotel, White Sulphur Springs, W. Va. July 10-11

Educational Graphic Arts Exposition—Chicago Sept. 11-23

Regional

Ohio Tech. Section — Manchester Hotel, Middleton, O. Mar. 14

Lake State Tech. Section—American Legion Club House, Appleton, Wis. Mar. 14

Mich. Supts. Div.—Hotel Harria, Kalamazoo, Mich. Mar. 16

Lake Erie Papermaker's and Converters Ass'n—Hickory Grill, Cleveland, O. Mar. 17

Pacific Coast Tech. Section—Camas, Wash. April 7

Lake States Technical Committee, Amer. Pulpwood Assoc.—King's Gateway, Land O' Lakes, Mich. May 3

Pac. Coast Supts.—Wash. Branch, Cana. Tech. Section—Pac. Coast Tappi (Joint Convention)—New Washington Hotel, Seattle May 11-13

Canadian Tech. Section—Chateau Frontenac, Que. May 31-June 2

Amer. Forest Products Society — Portland, Ore. June 25-29

Paper Industry Salesmen—Midston House, New York City—Every Monday, 12 noon to 2 p.m.

GEORGE W. SPENCER, at age 73, has retired from Publisher's Paper Co., Oregon City, Ore., after 40 years in forest products industries. He is now in business for himself, selling logs from his own holdings to the mill where he had been timber buyer for the past five years.

A. R. LILLICRAPP, W. G. GENNE' and A. J. NOLAN have been named vice-presidents for Dixie Cup Company, Easton, Pa.

Paper Maker Wanted

Large Eastern paper mill has an exceptional opening at the Supervisory level for a practical, highly skilled paper machine operator. This young man will have established an outstanding operating record in his present job. He has proven his resourcefulness, initiative and ability and is seeking a new connection primarily because of the increased opportunity and compensation our opening will bring him.

He must have the education, training and experience to assume full responsibility for the operating efficiency and product quality of several large machines. Book paper experience preferred but not essential.

This is a big job and a splendid opportunity for the right man. Give complete information in your reply to Box P&P 70, Pulp & Paper, 71 Columbia Street, Seattle 4, Wash.

SEATTLE HOTEL

Second and James Street, Seattle, Wash. Phone MA 8427

GRAND OPENING — FEBRUARY 15TH

Completely renovated and redecorated
NO CHANGE IN RATES

Take A **COX CHIPPER CHAIN** Users Word For It!

Drexel Furniture Company
KINGSTREE, SOUTH CAROLINA

"We have been using the COX CHIPPER CHAIN on our power saw equipment for quite some time, and it is the best we have ever tried. We rate it at least three times ahead of the next make.

"In addition to its fast cutting qualities, we like the ease with which it may be sharpened right on the job without even taking it off the machine. Just a few minutes by most anyone handy with a file, puts it cutting like new again."

Drexel Furniture Company
W. B. Bower
W. B. Bower, Mgr.

There is a Cox Chipper Chain Dealer near you. Write factory for his name, specifying make of saw and bar length. Accept no substitute. Ask for Cox Chipper Chain — The Oregon Chain with Fast-File Teeth. It alone will give you unsurpassed cutting quality, filing ease.

SAW CHAIN SPECIALISTS

Oregon Saw Chain

MANUFACTURING CORP.

2712 N. MISSISSIPPI AVE. • PORTLAND 12, ORE.



BLOEDEL, STEWART & WELCH LIMITED VANCOUVER, B. C.



LOGS

PACIFIC COAST LUMBER
UNBLEACHED KRAFT PULP
RED BAND CEDAR SHINGLES
PRES-TO-LOGS

Large Stands of Virgin Timber

"HERE TODAY AND HERE TOMORROW"

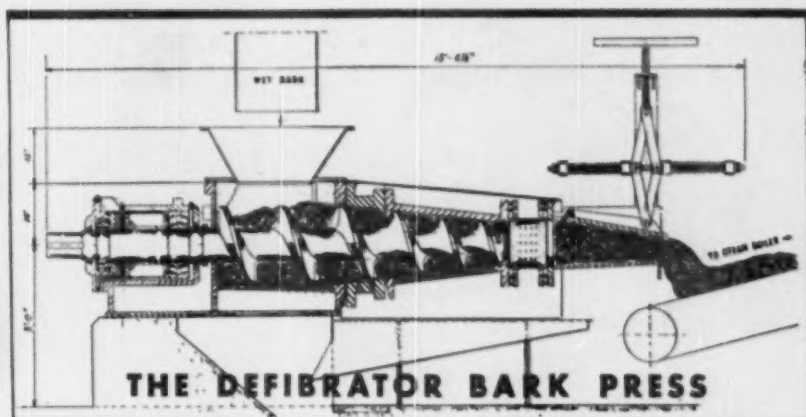
Sales Offices:

PORT ALBERNI and VANCOUVER, CANADA

Pulp Sales Agents:

UNITED STATES: THE MEAD SALES COMPANY, INC., 230 Park Avenue, NEW YORK, N.Y.
UNITED KINGDOM: PRICE & PIERCE LIMITED, 1058 Sun Life Building, MONTREAL, P.Q.

CUT FUEL COSTS BURN BARK



Dewatered bark is good fuel. The Defibrator Bark Press, reduces the moisture content of wet bark to 55% or below. In this state, the bark burns readily, and has about half the fuel value of coal.

The press utilizes the Defibrator screw feed principle. Wet bark, containing about

85% water, is fed through a hopper to a tapered throat where it is compressed by a screw. The water is squeezed out and drains through numerous small holes. Further extraction takes place as the bark passes through the drainage pipe.

In installations now in operation, process-

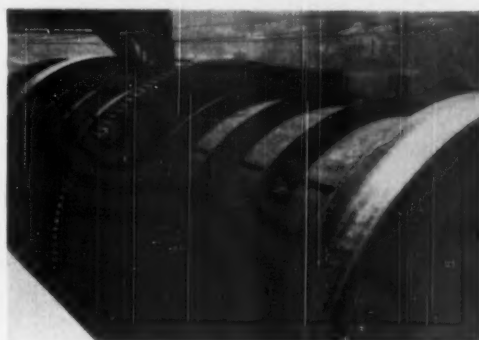
ing capacity is approximately 5 tons per hour (on a bone dry basis), and power consumption at this capacity runs between 35 and 40 H.P. Main body is cast steel; compression screw throat and outlet pipe are stainless steel; heavy duty bearings and construction throughout assure long life and minimum maintenance.

AMERICAN DEFIBRATOR, INC.

CHRYSLER BUILDING
NEW YORK 17, N. Y.

West Coast: A. H. Lundberg
Orpheum Building, Seattle, Wash.

The Carthage 360 Barking Drum



Here is an all welded drum built like a one piece tube instead of having parts to be knocked loose one by one. Here is a shell built of six $1\frac{1}{8}$ " rolled steel plates weighing 12,000 pounds each and running full length — a shell weighing about three times as much as the wood it contains.

There are only eight bearings in the chassis.

BETTER APPROACH TO BARKING

- ✓ Without Maintenance
- ✓ Without Brooming

CARTHAGE MACHINE COMPANY

ENGINEERS and BUILDERS

CARTHAGE, NEW YORK

Pacific Coast Representative: RAY SMYTHE, 501 PARK BUILDING, PORTLAND 5, ORE.



Does a good finish have to be expensive?

"We had to find a way to produce better finishes and, at the same time, cut calendering costs. Production time and labor costs during breakdowns began squeezing profits. We made a test with one Butterworth Calender Roll in the stack and found that our finishes were smoother and production increased. We've standardized on Butterworth Rolls since then and are producing outstanding finishes at lower costs with fewer delays."

You'll find Butterworth Calender Rolls in use in America's leading paper mills, producing superior paper finishes, giving increased production and many additional hours of calendering time. Butterworth Rolls are pretested for strength, hardness and density before delivery. They are made of first quality materials and to exact specifications. That is why they can be depended upon for top flight calendering service.

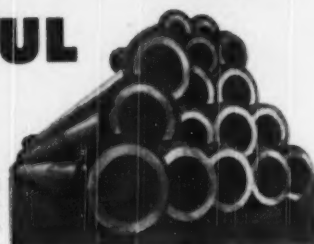
Let us show you the way to better calendering at lower costs. We make calender rolls for all types of calendering in every size to your specifications. We can also refill your present rolls.

For full information, write or call H. W. Butterworth & Sons Company, Philadelphia 25, Penna.—Providence Division, Providence, R. I. : Charlotte, N. C., 1211 Johnston Building In Canada—W. J. Westaway Company, Hamilton, Ontario

Butterworth Calender Rolls

100

A LONG AND USEFUL LIFE



... can be predicted for these stock line pipes of 10-gauge stainless steel, because they were fabricated in a plant where thorough workmanship, on large or small jobs, is a fifty-year-old tradition! Special experience in the needs of the pulp and paper industry.

PUGET SOUND SHEET METAL WORKS

Fabricators in all metals, 30 ga. to 1 in.

1631 E. MARGINAL WAY

MAin 0176 SEATTLE 4, WASHINGTON



L. H. HOFFMAN BUILDING CONSTRUCTION

715 S.W. Columbia Street, Portland, Oregon, BR. 1261

Industrial Buildings

FOR CROWN-ZELLERBACH CORPORATION

MILL D	West Linn
MILL F	West Linn
BLEACH PLANT	West Linn
COATING PLANT	West Linn
LIME KILN	Camas
CAUSTICISING	Camas
BLEACH PLANT	Camas
SCREEN ROOM	Camas
LUNCH ROLL BLDG.	Camas
SCREEN ROOM	Camas
BOILER HOUSE	Camas
TOMLINSON FURNACE	Camas
DIGESTER BLDG.	Camas
BROWN STOCK WASHER BLDG.	Camas
NO. 15 MACHINE BLDG.	Camas
WOOD MILL	Camas

FOR OTHER CORPORATIONS

Oregonian Publishing Co.	Newspaper Plant
Continental Can Co.	Portland Plant
Pacific Mutual Life Insurance Co.	Salem Shopping Center
Sears Roebuck & Co.	Portland and Eugene Stores
Studebaker Pacific Co.	Warehouse
Hudson Motor Sales Co.	Warehouse
National Biscuit Co.	Portland Plant
Fibreboard Products Co.	Portland Plant
First National Bank of Portland	Salem Bank Building
U. S. National Bank of Portland	Portland Metropolitan Branch
Pacific Power & Light Co.	Portland Office Building
Aluminum Co. of America	Vancouver—Plant Cafeteria
Aluminum Co. of America	Vancouver—Fume Control Plant

PULP & PAPER



Experience

For over half a century, master craftsmen have been perfecting experience-proven manufacturing techniques... another reason why *Appleton Wires are Good Wires.*



APPLETON WIRE WORKS, INC.
APPLETON, WISCONSIN

©1950

March 1950

**Get the Jump
on Your Competition**

WITH THE

AMMONIUM BISULPHITE Pulping Process

FOR

Improved Pulp Quality

Increased Production

Stream Pollution Abatement

Better Operating Efficiency

Get the facts on the many advantages to be derived from low-cost conversion of any existing acid system to the ammonium bisulphite pulping process. Without charge or obligation, let a member of the Barrett technical staff show you how you can greatly improve your position in acid pulping. Write, wire or telephone! Your inquiry will receive prompt attention.

THE BARRETT DIVISION

ALLIED CHEMICAL & DYE CORPORATION
40 RECTOR STREET, NEW YORK 6, N. Y.



**STANDARD
ANHYDROUS
AMMONIA**

*Reg. U. S. Pat. Off.

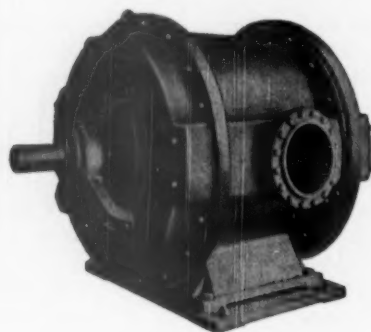
TRONA SALT CAKE

a quality Product

AMERICAN POTASH & CHEMICAL CORPORATION
3030 West 6th Street Los Angeles 54, Calif.

0
0

ONLY NASH VACUUM PUMPS
HAVE ALL THESE FEATURES



One Moving Element. Non-pulsating Vacuum. No Internal Wearing Parts. No Internal Lubrication. Handles Liquid With Air. No Expert Attendance. Constant Efficiency. Low Maintenance Cost.

NASH ENGINEERING COMPANY
SOUTH NORWALK, CONNECTICUT, U. S. A.

102

**One
contractor
for all phases
of
PULP
and
PAPER MILL
construction**

**BRITISH COLUMBIA
BRIDGE & DREDGING
CO. LTD.**

544 HOWE STREET VANCOUVER B. C.

HERMANN CLAFLIN REFINER

**CONTINUOUS
BEATER and REFINER**

NOW: Fifteen large No. 3 units in operation on Kraft Pulp making Cement Sack, Envelope, Gumming, Asphalting and Waxing. Production up to 200 tons and more per day, with 200 H.P. to 350 H.P.

Mfgs. Also: TAPPI; Standard Pulp Testing and Sheet Making Apparatus.

THE HERMANN MFG. CO.
LANCASTER, OHIO

PULP & PAPER

GOULDS

CENTRIFUGAL STOCK PUMPS



Diagonally Split Casing
Warped Vane Positive Flow Impeller

FOR ALL CONSISTENCIES
AND
TYPES OF PAPER STOCK

Distributors—

RMEWADE & CO.
SINCE 1865

PORTLAND • SEATTLE

106 S.E. Hawthorne Blvd.

818 First Ave. So.

Do you know the news of the North American Pulp, Paper and Cellulose Industries?

SUBSCRIBE NOW to PULP & PAPER. The NORTH AMERICAN REVIEW NUMBER is included in subscription rates below:

1 YEAR \$3.00, 2 YEARS \$5.00, U. S., Canada, Mexico
and other member nations of Pan-American Union.
1 YEAR \$4.00, 2 YEARS \$7.00 in other countries.

Fill in this coupon NOW and return to

PULP & PAPER

71 COLUMBIA ST., SEATTLE 4, WASH.

NAME _____

COMPANY _____

POSITION _____

ADDRESS _____

CITY AND STATE _____



Manhattan RUB-ROC Rolls

Special Surface for Top Press Roll Service

RUB-ROC Rolls are covered with Manhattan's exclusive Flex-lastics, marble-like surface that repels water and eliminates picking. Manhattan's MARBLEX Table Rolls are specially compounded to eliminate galvanic action. Whenever smoothness and quality of paper surface are vital, RUB-ROC and MARBLEX Rolls are the safest to use.

Nearly every paper mill has special requirements of density and finish in rubber covered rolls. The quality of their products and the speed of their output depends largely on satisfactory roll performance. Our roll covering engineers understand your requirements and interpret them exactly in the rolls they cover for you.

Pacific Coast Representative:

DAN E. CHARLES AGENCY, 1331 3rd Ave., Seattle 1, Washington
Roll Covering Plants at Neenah, Wis. • Passaic, N. J. • North Charleston, S. C.



RAYBESTOS-MANHATTAN, INC.

MANHATTAN RUBBER DIVISION, PASSAIC, NEW JERSEY



PROMPT SERVICE

TO MEET YOUR SPECIFIC NEED

DESIGNERS and FABRICATORS
of METAL

Special Valve Orders
Filled in 10 Days

FABRI-VALVE CO. OF AMERICA

Northwest Copper Works, Inc.
2321 No. Randolph St., Portland 12, Oregon



"EXCELSIOR" FELTS

The Trademark of Felts of Superior Quality
for Every Grade of Pulp and Paper

KNOX WOOLEN COMPANY

CAMDEN, MAINE

Pacific Coast Agents

DAN E. CHARLES AGENCY, 1331 Third Avenue Building, Seattle, Wash.

SULPHITE MILL ACID PLANTS

SULPHUR BURNING PLANTS
GAS COOLERS — SURFACE AND SPRAY TYPE
JENSSEN TWO TOWER ACID SYSTEMS
JENSSEN PRESSURE ACID SYSTEMS
JENSSEN AUXILIARY PROCESS TOWERS
RECOVERY PLANTS — COOKING ACID

SOLUBLE BASE ACID PLANTS
SEMI CHEMICAL PLANTS
JENSSEN SO₂ ABSORPTION SYSTEMS
FOR BLEACH PLANT APPLICATION
SULPHUROUS ACID PREPARATION

G. D. JENSSEN CO. INC.

WATERTOWN, NEW YORK
WESTERN REPRESENTATIVE:
A. H. LUNDBERG, 308 Orpheum Building, Seattle 1, Washington
FOUNDED 1913

RAY SMYTHE

**Pulp and Paper Mill
Machinery and Supplies**

REPRESENTING:

RICE BARTON CORP. — HEPPENSTALL CO.
SHENANGO-PENN MOLD CO.
LANGDON COLLAPSIBLE WINDER SHAFTS
NORTMANN DUFFKE CO.
ATWOOD-MORRILL CO.
SMYTHE MULTIVAT FLAT SCREENS
CARTRIDGE MACHINE COMPANY

501 PARK BUILDING, PORTLAND 5, ORE
Beacon 0502



PULP BLEACHING COMPANY

71 Columbia St., Seattle 4, Wash.

EQUIPMENT FOR
CELLULOSE PURIFICATION
AND RELATED PROCESSES

QUALITY CHROMIUM PLATING

For rolls, screen plates, slice lips, etc.



CHROMIUM CORPORATION OF AMERICA

New York Waterbury Cleveland Chicago

WM. K. STAMETS, JR.
CONSULTING MECHANICAL ENGINEER

h o g e b u i l d i n g

SEATTLE 4
MUTUAL 0088

WALTER S. GORDON, JR.

CONSULTING ELECTRICAL ENGINEER

Pulp and Paper Mills Industrial Plants

"Old Electric Systems Need Modernising!"

Perkins Building TACOMA 2 Telephone
108 East 11th Street WASHINGTON Broadway 9442

JAMES I. METCALF & Co.

CONSULTING ENGINEERS

POWER and WATER SUPPLY

Lloyd Building SEATTLE 1 Seneca 6323

FRANK C. VAUGHAN

Consulting Engineer

STUDIES, DESIGN, ESTIMATES, CONSTRUCTION,
MANAGEMENT AND OPERATION
for

KRAFT, SEMI-CHEMICAL
PULP, PAPER AND STRUCTURAL BOARD MILLS
7th AND HOSPITAL STS. • RICHMOND, VA.

PAUL A. LAURENCE COMPANY

ENGINEERS and CONSTRUCTORS

416 BUILDERS EXCHANGE MINNEAPOLIS 2, MINN.
CANADIAN OFFICE: Fort Frances, Ontario, Box No. 69

PULP AND PAPER MILLS
STEAM AND HYDRO-ELECTRIC POWER PLANTS
TOWERS — CHESTS — TILE TANKS
ACID RESISTING LININGS

JOHN P. VAN ORSDEL

Forest and Lumber Consultant

33 YEARS OF EXPERIENCE IN THE FORESTS OF ALASKA,
WESTERN UNITED STATES AND CANADA

Office: MAin 0253 1411 4th Ave.
Res. MAin 1300 SEATTLE Building

EMBOSSING ROLLERS

Roehlen Engraving Works, Inc.

324 St. Paul St., ROCHESTER 5, N. Y.

MFGRS. OF ENGRAVED EMBOSSING ROLLERS
AND PLATES OF ANY TYPE AND DESCRIPTION
WORN ROLLERS RE-ENGRAVED
COMPLETE DESIGNING AND ENGINEERING SERVICE

ARTHUR J. NORTON

CONSULTING CHEMIST

Resins, Plastics and Chemical Research Development

2919 First Ave. So. Seattle, Wash

PULP & PAPER

STEVENSON & RUBENS CONSULTING ENGINEERS

756 Olympic National Bldg. Seattle 4, Wash.
SEneca 0414

LAYOUT AND STRUCTURAL DESIGNING

BORIS R. RUBENS JOHN H. STEVENSON

ALVIN H. JOHNSON & CO. INCORPORATED

PULP AND PAPER MILL ENGINEERS

Serving the Pulp & Paper Industries Since 1929

415 Lexington Ave. New York 17, N. Y.

O. C. SCHOENWERK Consulting Engineer

3240 LAKE SHORE DRIVE
CHICAGO, ILLINOIS

Pulp and Paper Mill Design - Construction



C. M. GUEST & SONS Builders

GREENSBORO, N. C. ANDERSON, S. C.

Paper & Pulp Mills • Waste Disposal • Water Filtration
Steam Power Plants • Process Piping • Textile Mills

SERVING THE INDUSTRIAL SOUTH for MORE THAN FIFTY YEARS

J. E. SIRRINE CO. Greenville, South Carolina

Engineers

PAPER & PULP MILLS • WASTE DISPOSAL • TEXTILE MILLS •
APPRAISALS • WATER PLANS • STEAM UTILIZATION •
STEAM POWER PLANTS • HYDRO-ELECTRIC • REPORTS

STADLER, HURTER & COMPANY

CONSULTING ENGINEERS
SUITE 609 DRUMMOND BUILDING
Montreal, Canada

Specializing Since 1933 in

PULP AND PAPER MILLS
FROM FOREST TO FINISHED PRODUCTS
A. T. HURTER, M. E. I. C.

W. H. RAMBO INDUSTRIAL PLANT ENGINEER

SPECIALIZING IN
DESIGN—ESTIMATES—SUPERVISION—CONSTRUCTION
PAPER MILL WOOD ROOMS
SAWMILLS, WOODWORKING and VENEER PLANTS
Guardian Building Bldg. 5102 Portland 4, Oregon

CHAS. T. MAIN, INC. CONSULTING ENGINEERS

Process Studies, Design, Specifications and Engineering Supervision

PULP AND PAPER MILLS

Steam Hydraulic and Electrical Engineering

Reports, Consultation and Valuations

80 Federal Street

Boston 10, Mass.

JOHN B. CALKIN

Consultant to the Pulp and Paper and
Chemical Process Industries

Technical and Marketing Consultations

Industrial Research Advisor

Laboratory & Pilot Plant Investigations

500 Fifth Avenue at 42nd Street

NEW YORK 18, N. Y.

THE RUST ENGINEERING COMPANY

Engineers and Constructors

Pittsburgh, Pa.

Portland, Ore.

Los Angeles

Complete Service for

PULP AND PAPER MILL PLANTS AND FACILITIES
MODERNIZATION, DESIGN, CONSTRUCTION and MAINTENANCE

PFEIFER AND SHULTZ - - Engineers

Specializing in the Design of Steam Power Plants

Mills and Industrial Buildings • Reports • Plans and Specifications • Supervision of Construction

WESLEY TEMPLE BUILDING

MINNEAPOLIS 4, MINNESOTA

WRITE! WIRE! CONTACT! CALL!

Farnes & Martig, Inc.

CONTROL VALVES FOR:

Stock • Chlorine • Caustic
Steam • Water • Sulphite Liquor

417 N.E. Couch St. 422 Smith Tower
PORTLAND 14, OREGON SEATTLE 4, WASH.
Telephone EA. 1949 Telephone MAIn 5253

CHEMIPULP PROCESS INC.

500 WOOLWORTH BUILDING WATERTOWN, NEW YORK

CHEMICAL PULPING PROCESS

Hot Acid Cooking and Recovery Systems
Chemipulp-K-C Digester Circulating Systems
Chemipulp-K-C Improved Acid Plants
Digester Waste Liquor SO₂ Gas and Heat Recovery
Chip Pretreatment Preparatory to Cooking

Associated with
CHEMIPULP PROCESS LTD.
403 CRESCENT BUILDING MONTREAL, P. Q.
S. A. SALMONSON, West Coast Representative
907 Terminal Sales Bldg., 1320 S.W. Morrison St., Portland 5, Oro.
Office: ATwater 4107 — Residence: KEnwood 3944

Complete Electrical Installations
For Pulp and Paper Mills

WESTERN ELECTRICAL CONSTRUCTION CO.

ENGINEERS, CONTRACTORS AND INSTALLERS

PORTLAND 9, OREGON
1233 N.W. Lovejoy St. Phone BRoadway 3781

Northwest Filter Co.

SEATTLE VANCOUVER, B. C.
122 Elliott Ave. West. Foot of McLean Drive
GA. 7700 HA. 1185

WATER PURIFICATION

Foster Wheeler Corp., Power Plant and Process Equipment
Buell Engineering Co., Inc., Dust Recovery Systems
Calgon, Inc., Threshold Treatment
Monterey Sand Co., Filter Sand
Hagan Corporation, Combination Control
Hall Laboratories, Inc., Boiler Water Conditioning

WILLIAM R. GIBSON, Representing
Inflico, Inc. (International Filter Co.)

FIRMS YOU SHOULD KNOW Advertising Index

Alaskan Copper Works	96	Hoppenstall Co.	22	Parsons & Whittemore Inc.	79
American Defibrator Co.	99	Hercules Powder Co.	18	Perkins & Son Inc. B. F.	9
American Potash & Chemical Co.	102	Hermann Mfg. Co.	102	Perkins-Goodwin Co.	Outside Back Cover
Appleton Wire Works	101	Hoffman L. H.	100	Pfeifer and Shultz	103
Appleton Woolen Mills	104	Hooker Electrochemical Co.	8	Powell River Sales Co.	20
Bagley & Sewall Co.	6	International Harvester Co.	77	Puget Sound Pulp & Timber Co.	67
Barrett Division Allied Chemical & Dye Corp.	101	Jensen Co., G. D. Inc.	104	Puget Sound Sheet Metal Works	100
Bauer Bros. Co.	81	Johns-Manville Corp.	27	Pulp Bleaching Co.	104
Beloit Iron Works	43	Johnson & Co., Alvin H.	105	Pusey & Jones Corporation	68
Blod Machine Co.	41	Jones & Sons Co., E. D.	3	Rambo, W. H.	105
Black Clawson Co. Divisions:	10	Kidder Press Co.	81	Raybestos-Manhattan, Inc.	103
Shurtleff Bros. Machine Co., Dilts Machine Works	10	Knox Woolen Co.	101	Rayonier Incorporated	28
Blondel, Stewart & Welch, Ltd.	98	Langston Co., Samuel M.	30	Robert And Company Associates	82
B. C. Bridge & Dredging Co.	102	Laurence Co., Paul A.	104	Roshien Engraving Works, Inc.	104
Bristol Co., The	31	Link Belt Co.	13	Ross Engineering Corp., J. O.	51
Brown Co.	2	Lodding Engineering Corp.	14	Rust Engineering Co., The	105
Brown-Hutchinson Iron Works	94	Lufkin Foundry & Machine Co.	91	Schoenwerk, O. C.	105
Brown Instrument Co.	21	Lyndon & Co., Inc.	79	Shuler & Benninghofen	95
Bulkley, Dunton Organization	61	Magnus Metal Division National Lead Co.	89	Serine Co., J. E.	103
Batterworth & Sons Co., H.	100	Main, Inc., Chas. T.	105	Smith Corporation, A. O.	Inside Back Cover
Calkins, John B.	105	Mason-Neilan Regulator Co.	1	Smythe, Ray	104
Cameron Machine Co.	4	McGraw & Co., F. H.	49	Soundview Pulp Co.	90
Carthage Machine Co.	99	Mead Sales Co., Inc.	58	Sprout Waldron & Co., Inc.	25
Chemipulp Process Inc.	106	Merrick Scale Mfg. Co.	97	Stadler, Hurter & Co.	105
Chromium Corporation of America	104	Metcalf & Co., James I.	104	Stamets, Wm. K., Jr.	104
Classified Advertising	97	Moore & White Co.	26	Standard Oil Co.	59
Cochrane Corporation	73	Morden Machines Co.	29	Stebbins Engineering & Mfg. Co.	47
Corn Products Sales Co.	92	Murray Paper Mill Supply Co.	19	Stevens & Rubens	105
Curlator Corporation	11	Murray Mfg. Co., D. J.	92	Stone & Webster Engineering Corp.	71
Dow Chemical Co.	55	Nash Engineering Co.	102	Stowe-Woodward Co.	53
Downington Mfg. Co.	64	National Aluminate Corp.	Inside Front Cover	Sumner Iron Works	89
Draper Bros. Co.	88	Newport News Shipbuilding & Drydock Co.	85	Sutherland Refiner Corp.	57
Du Pont de Nemours & Co., Dyestuff Division	75	NOPCO Chemical Co.	7	Swenson Evaporator Co. Division Whiting Corp.	4
Eastwood-Nealley Corp.	87	Northwest Copper Works, Inc.	101	Swift & Co.	61
Electric Steel Foundry Co.	23	Northwest Filter Co.	106	Texas Gulf Sulphur Co.	70
Fabre Valve Co. of America	103	Norton, Arthur J.	104	Valley Iron Works	15
Farnes & Martig, Inc.	106	Oregon Saw Chain Mfg. Corp.	98	Van Orsdel, John P.	104
Foster Wheeler Corp.	86	Pacific Car & Foundry Co.	93	Vaughan, Frank C.	104
General Electric Co.	16 and 17	Pacific Coast Supply Co.	84	Wade & Co., R. M.	103
Gordon, Walter, Jr.	104	Pacific Gear Works	75	Warren Steam Pump Co., Inc.	12
Gottseman & Co., Inc.	32	Pacific Gear & Tool Works	75	Western Electrical Construction Co.	106
Guest & Sons, C. M.	105			Western Gear Works	25
				Weyerhaeuser Timber Co.	24

VESSEL DIVISION

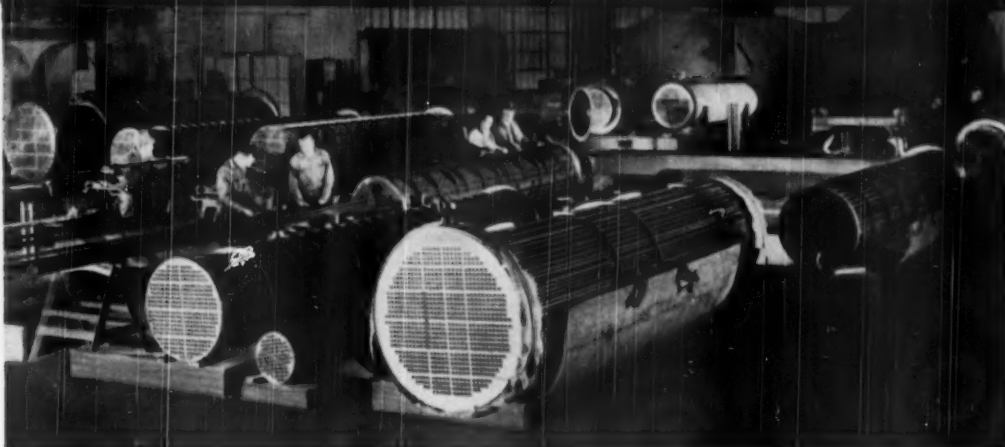
NEWS



A.O. Smith

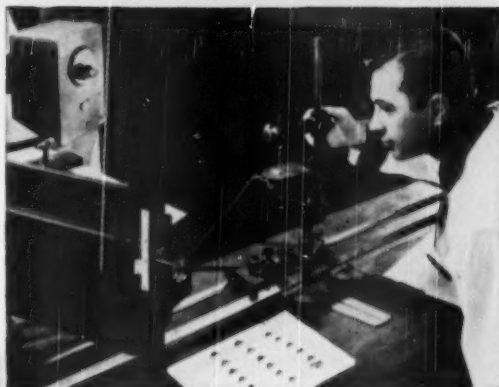
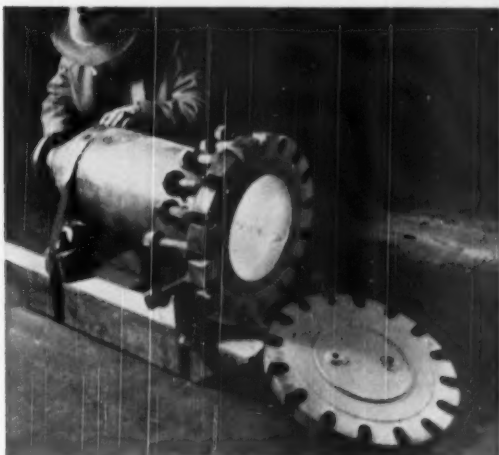
CORPORATION

New York 17 • Boston 16 • Philadelphia 3 • Pittsburgh 19 • Chicago 4
Washington 6, D. C. • Atlanta 3 • Tulsa 3 • Dallas 1 • Houston 2
Seattle 1 • Los Angeles 14 • International Division: Milwaukee 1



➡ **NO JOB IS TOO BIG — OR TOO SMALL.** Heat exchangers for every service—large or small, hot or cold, high or low pressures—are engineered and built by A.O. Smith. Customers benefit from accumulated years of A.O. Smith experience in the use of a wide variety of materials.

NO PIG-IN-A-POKE HERE. The customer and A.O. Smith collaborated in the building of this SMITHway alloy-lined experimental pilot unit so that the alloy lining, selected by laboratory tests for corrosion service, could be subjected to process test-runs before the full-size production units were manufactured.



➡ **SAFEGUARDING THE CUSTOMER'S INVESTMENT.** After the selection of the alloy lining, A.O. Smith makes doubly sure that it conforms to specifications, and does not contain any undesirable residual elements, by spectro-chemically analyzing sample coupons of the lining before releasing it for manufacture into the vessel.

A. O. Smith Corporation, Dept. PP-350
Milwaukee 1, Wisconsin

Without obligation, send us the latest A.O. Smith Vessel Bulletin:

- ☐ V-46: Alloy, Alloy-lined, Clad and Glass-lined Vessels
- ☐ V-44: Field Assembly of Pressure Vessels
- ☐ V-52: Multi-Layer Manufacture and Assembly

Name

Firm

Street City State

PULP

Perkins-Gummin Co.

Established 1846

CHICAGO, ILLINOIS

30 ROCKEFELLER PLAZA, NEW YORK

LUFKIN, TEXAS

STOCKHOLM, SWEDEN

PAPER